

THE AMERICAN BEE JOURNAL

Devoted Exclusively to Bee Culture.

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Editor's Table.

H. G. Heckman, Constantine, Mich., has placed an excellent sample of his white clover honey on our table. It is beautifully clear and white.

The North-Eastern Wis. Association have printed their proceedings in a 12 page pamphlet. Those wanting copies should send to the secretary, Mrs. F. A. Dunham, De Pere, Wis., for them.

The island of Cyprus at one time contained nine different kingdoms, and more than a million inhabitants. Owning to the alleged peculiar temperament of its people, it was called "the home of love and beauty."

The Louisburg, Kansas, *Herald*, has over two columns devoted to a description of Mr. Paul Dunkin's apiary. Mr. D., is a successful and scientific apiarist, and well deserves the compliments given by the *Herald*.

Mr. J. E. Moore has sent us a sample of his new crop of honey in his style of box. It is very fine. Also samples of his manner of marketing. He makes those caps for 1, 2, 6 and 12 boxes, and furnishes a wood bottom for them, so that they can be marketed without crating—though they must be crated or boxed when shipped. Friend Moore is a genius, and makes marketing a study, and we are glad of it. Such persons are always a benefit to society.



SEASONABLE HINTS.—In this northern climate, if your bees are not already in winter quarters, lose no time in putting them in at once. See that all have 30 pounds of good, capped honey for winter food; if they have not enough, feed them. Any colonies that are weak should be united, so that they may be strong in numbers. A division board to contract the chamber will be convenient. Cover the frames with a sheet of duck, coarse factory cloth with cotton batting between, or some woolen quilt, to keep them warm and absorb the moisture, and place in the cellar or winter repository. Keep the temperature from 35° to 45°, and see that it is properly ventilated.

If you wish to winter out of doors, protect either by packing in chaff, hay or straw, 3 or more inches thick, with a slanting-board roof to keep it dry, or use a box for packing as described by Prof. Cook in his new Manual.

Having placed your bees into winter quarters, store your mind with bee literature, for it will make you wise and successful,—and then make hives and boxes for next season's operations, or procure them of some reliable dealer. This is very often the most economical way—but don't wait till next spring before you send your order for them, and then get them by express. Order them early and get them by freight, thereby saving expense and worry.

PROGRESSIVE IDEAS.—One important action taken by the National Bee Keepers' Convention, was that in reference to "increasing its usefulness," as reported on pages 378-9 of this issue. We mean particularly its advice to local societies to hold "Bee and Honey Shows" once in each year, at which time manipulations with bees should take place, and competitive exhibits of honey should be made. The National Society decided to offer a "diploma for the most expert handling of bees," leaving the local society to determine the kind of manipulation—whether of transferring, finding and caging the

queen, uniting or dividing colonies, &c., &c. And for the best exhibit of honey in the most marketable shape, they agreed to "award a suitable medal."

This is a move in the right direction and must tell for good; educating the bee-keepers up to the right standard and getting them to adopt scientific management, and the most rational ideas. It has a farther intention—that of banding bee-keepers together for purposes of mutual interest, securing a uniform price for honey in each apicultural district. We really think this is the most important move that has been made for many years.

Now, we ask: Will bee-keepers all over the country endorse this policy, by becoming members of the National Society. It will take money to carry out a plan of operations, which is thoroughly aggressive, but the dues of each member, (one dollar,) will do it, and carry it forward to success. The name and dollar may be sent either to the Secretary, Dr. E. Parmly, 19 West 38th St., New York; the Treasurer, J. H. Nellis, Canajoharie, N. Y., or to the President, the editor of this JOURNAL.

Providence permitting, we'll show you all, by next summer, something in the line of success heretofore unthought of. Now, how many will endorse this policy? Reader, will you?

Many interesting communications and letters are deferred on account of the Report of the Proceedings of the National Convention. They will appear in our next issue.


NEW POST OFFICE RULING.—The Post Master General has issued a circular to Post Masters instructing them to receive "all articles of the third class (excepting in all cases liquids, poison, glass, and explosive materials, prohibited by section 133 of the postal laws), when enclosed in a special tin envelope," a sample of which was sent to the Post Masters with the instructions. This order now admits honey knives, and perhaps queens. We shall see our Post Master and ascertain before our next issue, in plenty of time for the queen business of next season.

Mr. C. O. PERRINE, proprietor of the floating apiary, returned to Chicago last month—also his managing bee-keeper, Mr. F. Grabbe. The *St. Charles Review*, of Oct. 19th, says: "The apiary (of 600 colonies) is at present located in Calhoun county, Ill., near the bank of the river, and will remain there till the last of November, or until the yellow fever subsides. The bees will then be loaded on barges and moved down the river to the vicinity of New Orleans, where they can begin work upon the soft maple and the willow blossoms, the latter part of January. Early in the spring the barges will be started up the river again. The design is to travel nights and lay by during the day for the bees to gather honey—the object being to keep the apiary among perpetual flowers throughout the season."

The Southern Kentucky Bee-Keepers' Convention will meet at Horse Cave, Hart Co., Ky., on the first Friday and Saturday in November, at 10 o'clock a. m., to which all those interested in bee-culture are invited. The following subjects will be discussed:

- Who should keep bees, and how should they keep them?—Opened by a fifteen-minutes speech by W. Cook; Dr. Whitlock, alternate.
- Artificial Swarming—James Ervin and N. P. Allen.
- Transferring Bees—W. T. Sears and N. Holman.
- Over-stocking—N. P. Allen and J. G. Allen.
- Best Location for Bees—I. N. Greer and J. M. Holman.
- Which will Pay Best, Comb or Extracted Honey? W. W. Witz and R. A. Alexander.
- How to Winter in this Climate—J. D. Davis and J. Adams.
- How to Carry Through the Spring—A Simmons and R. W. Sanders.
- History of Bee-Culture—Wm. L. Dulaney and J. G. Allen.
- Artificial Comb Foundation—N. P. Allen and J. D. Davis.
- All questions will be opened with fifteen-minutes' speeches.


All those who are on questions for debate are earnestly requested to be present and prepared to discuss the questions assigned them.


 New subscribers for next year will receive the November and December numbers free, as long as they last. So make up clubs at once. Our clubbing rates with other papers for next year will be as follows:

CLUBBING LIST.

We supply the *AMERICAN BEE JOURNAL* and any of the following periodicals at the prices quoted in the last column of figures. The first column gives the regular price of both.

Gleanings in Bee Culture.....	\$2 50	\$2 25
Bee-Keepers' Magazine.....	3 00	2 50
The three Bee papers of U. S.....	4 00	3 00
British Bee Journal.....	4 00	3 00
All four—British and American.....	6 50	5 00
American Poultry Journal.....	2 75	2 50
American Agriculturist.....	3 10	2 65
Moore's Rural New Yorker.....	4 15	3 65
National Live Stock Journal.....	3 65	3 15
Prairie Farmer.....	3 50	3 15
Scientific American.....	4 90	4 35
Western Rural.....	3 50	3 15
Voice of Masonry.....	4 50	3 75

 We have received a nice photograph of C. E. Sweetzer's apiary. It is located in Plain City, Madison Co., O. The array of hives and general business look of things being quite creditable to friend Sweetzer's energy and progressive ideas. We congratulate and thank him for sending it to us. It now graces our Museum wall.


 In writing to this office, please do not mix business matters up on the same sheet with articles for publication. It is very inconvenient. Write it on separate sheets, so that the business matter can go directly into the hands of the business manager, and that for publication to the editor—two different persons.

AN APOLOGY—I promised to lecture at the recent meeting of the Western Illinois and Eastern Iowa Bee-Keepers' Association, and thoroughly expected to fulfill my promise. But work which I could neither hasten nor defer came upon me to be done, and enforced my absence. I was compelled to telegraph at the last moment that I could not be there. The meeting at Burlington in the spring gave me so much pleasure and profit, that I had looked forward with much interest to the New Boston meeting with its genial associations and its contagious enthusiasm. My unwilling absence was a real regret to me. I hope all the good friends will take this statement as a sufficient apology for what may have seemed an unfaithful neglect. O. CLUTE.

Iowa City, Iowa, Oct. 21, 1878.

Local Convention Directory.

- 1878.
- Nov. 1.—Southern Ky., at Caverna, Hart Co., Ky.
 - 11.—Lancaster County, Pa., at Lancaster, Pa.
 - Dec. 4.—Michigan State, at Grand Rapids, Pa.
 - 17.—Northwestern Illinois, at Shirland, Ill.
- 1879.
- Feb. 14.—South-Western Ohio, at Lebanon, O.
 - May 6.—Albany County, N. Y., at Clarksville, N. Y.
 - 6.—Central Kentucky, at Lexington, Ky.
 - 28.—North-Eastern Wisconsin, at Hartford, Wis.
 - Oct. 21.—National Convention, at Chicago, Ill.

 In order to have this Table complete, Secretaries are requested to forward full particulars of time and place of future meetings.—ED.

MARRIED.—Sept. 24th, 1878, at the residence of the bride's parents, in Granville, Licking county, Ohio, by the Rev. W. B. C. Rhoads, Dr. W. B. Rush, formerly of New Orleans, recently of Pekin, Ill., to Miss Fannie Asher, of Granville, O.

FRIEND NEWMAN: Dr. W. B. Rush, well known to the readers of the *JOURNAL*, has invaded our peaceable little town, and carried away with him one of our fairest daughters, Miss Fannie, the youngest daughter of one of our pioneer bee-keepers. She is well posted in the business, and the Doctor will find an efficient assistant in his accomplished wife. They have the good wishes of all their friends for their prosperity and safe journey through this vale of tears. W. U. S.

Selling and Shipping Honey.

For a lady of good practical sense commend us to Mrs. L. Harrison, of Peoria, Ill. In a late *Prairie Farmer* she remarks as follows on the subject of marketing honey:

White comb honey in the "prize box" has only to be shown to be sold. The temptation is too strong to be resisted. I once asked a person if he wished to buy some honey. He quickly answered, "No." I said, "Will you please look at it?" As he politely complied, he uttered a prolonged "O, I must have some of that."

If I had extracted honey to sell, I would visit all the drug stores in my vicinity and ascertain if they were supplied. These establishments use considerable; they put something into it to make it taste badly, and sell it as a sovereign remedy for coughs and colds! Extracted honey, put up in gallon packages, ought to sell well to families, boarding-houses, and hotels. Grocerymen do not seem to understand the selling of it; it gets to be an old settler.

Farmers do more to keep down the price of honey than any other class of people. They do not make a business of keeping bees, and when they "take up their honey," they load it into a wagon, drive to the nearest town, and sell it for whatever they can get. They know little and care less about the price of honey.

The demand for honey is yearly on the increase; formerly it used to be considered as an article of luxury or medicine, but the mass of the people are fast being educated to consider it an indispensable article of food.

☞ Milo Spalding has sent us a sample of drones and asks what we think of them. They are very large, well marked and bright in color. A friend sent to him to get some of the stock, and he informed him that he had none to sell. On inquiring where he procured the queen, he said he got her at the BEE JOURNAL office in Chicago, and wanted to get more of the same stock. Good enough. He can be accommodated next season. We have refused \$50.00 for the mother of that queen.

☞ By special invitation of President Cheney, we expect to attend the Michigan Bee-Keepers' Convention at Grand Rapids, Dec. 4th and 5th.

☞ Any one having Vol. I. of the AMERICAN BEE JOURNAL for sale, will please send postal card to this office, stating price.

NEW HONEY SECTIONS.—Mr. G. B. Lewis, of Watertown, Wis., has just brought out something new. They are all in one piece, nicely planed on all sides, and just where the joints should be it is gouged out perfectly true, so as to allow it to be bent into shape. The two outside ends being dovetailed, it goes together easily, and forms a nice box. When glued at the joints it is very solid and strong.

☞ A friend in Penn., writes us concerning an expression in the Sept. No., about the decision of the P. M. General excluding bees from the mails. We said that it would nearly ruin the dollar queen business. We added that "such ought not to be sent out either by mail or otherwise." Our friend wants to know, *Why?* We cheerfully answer: Dollar queens are *untested*, and often prove impure; purchasers unacquainted with Italians suppose them to be pure, and then raise and sell to their neighbors their progeny for *pure* stock, and thus, unwittingly, give Italians a bad name. Such a man called at our office some time since to see Italians; he said he never saw any like ours before, though he had purchased one of some breeder and raised queens from her and sold them to his neighbors for Italians. This is one of the evil results. Hence we said no *untested* queen should be sent out. Are we not right?

☞ J. Winfield, Hubbardston, O., has sent us a photograph of the Pillar of Honey, on which he obtained the Prize at the Ohio State Fair. It is handsome and caused much admiration while on exhibition. We cannot too strongly urge upon bee-keepers to exhibit their honey at all the neighboring fairs. It will speedily give their honey character and demand at home!

☞ Winter has come in good earnest, apparently; and much earlier than it has done for many years. "Frost and snow" now prevail, as we go to press.

Glucose for Feeding Bees.

We regret that the retiring President of the N. A. B. K. Association so strongly endorsed the use of glucose for feeding bees. It was doubtless a mistake; and when contrasted with the experience of the Rev. J. W. Shearer, as stated on page 392, of this JOURNAL, it appears exceedingly unfortunate. Mr. Shearer *killed* nearly all his bees, by feeding them glucose, and remarks on page 393 that "there is sufficient acid in the best glucose to kill bees."

Mr. King has tried both the native and foreign article, and says that he "could not eat a piece the size of his thumb nail without vomiting!"

Prof. Hasbrouck remarked that the sulphate of iron, which is not fully removed in its manufacture, caused the difficulty. He also stated that "if pure, glucose is not deleterious." This is the very point we propose to test. We tasted some of that, which was said to be *pure*, a few days ago, and should as soon think of feeding our bees arsenic as any of that vile trash! We expect to give in the next issue the result of a carefully conducted analysis which is now being made in the Michigan State Agricultural College laboratory. Till then we will suspend judgment.

A letter from Mr. L. P. Best, Superintendent of the Davenport Glucose Manufacturing Co., says that it is not true that dry glucose is obtained by using a great quantity of chalk, as stated by Mr. Dadant! He adds: "We are offering \$50 reward to any one that will find one per cent. of chalk in our grape sugar." Mr. Dadant has answered this matter on page 375.

It must be a strange infatuation that could allow Novice to say (as he does on page 348, Oct. *Gleanings*), that glucose "for brood-rearing, is even *better than honey!*" Is he not over-worked and worried with his new building on the fair grounds—making him "light in the upper story?" We fear that it may be so, but hope not. His perversion of the

language quoted from Mr. Langstroth's work, would seem to indicate a liberal share of insanity! Rest, Brother, Rest! Review and Recant!

At the Iowa State Fair T. B. Quinlan, of Cedar Rapids, had the largest display of nice honey, and took a prize of \$10.00 therefor. It is spoken of by the papers in that locality in terms of strong praise. Of course he used the prize box and crate. D. W. Thayer and J. R. Rogers, also obtained prizes for honey. Iowa is a progressive State, and its citizens fully appreciate honey when made attractive.

F. B. T'urber, Esq., is in Europe on business. In his absence a cable despatch was sent him offering him the nomination for Mayor of New York—but he promptly declined the honor.

A bottle of honey sent by mail, to the National Convention, in our care, came to hand with the bottle broken and honey all gone—spilled about the mails. There is no doubt about the wisdom of the Postmaster General in excluding such from the mails. Its being forwarded was in disobedience of his orders, and no doubt was visited by a rebuke.

The Paris Exposition Judges have awarded to Thurber & Co., of New York, the "gold medal" for honey and beeswax, while the French Apicultural Society have bestowed upon this firm a "Medal of Honor" for the "best honey in the most marketable shape."

A CURIOSITY.—Postmaster Boughton of Ridgebury, Conn., has discovered in his yard a comb of honey attached to an apple tree. It was made by a small swarm of bees, and the comb is as large as a peck measure, hanging from one of the limbs of the tree. At night the bees cover the outside of the comb instead of resting in a bunch in some one part of it. They do this to protect it from the dew, and so closely do their bodies join as to completely cover the surface. So says an exchange.



Items Caught on the Wing.

We were absent from home, from October 2d till the 24th, and while much might be said of our trip—one sentence will describe the whole of it:—Pleasurable and thoroughly enjoyed everywhere. At Toledo, O., as guest of Mr. J. Y. Detwiler, and as visitor to the North-western Ohio Association then in session, we found old friends as well as *new* ones, and enjoyed our visit exceedingly.

At Cleveland and Kent in Ohio, Elmira, Penn Yan, Seneca Falls, Syracuse and Suspension Bridge in New York, we visited with old friends and relatives, and, of course, had an enjoyable time.

At New York City as guest of Mr. Hoge and in attendance at the National Convention, we received unexpected honors, as well as a hearty welcome. With our old friends, it was a pleasant re-union; and with our newly-formed acquaintances, it was "pleasurable hours," gliding into "days of delight."

At Syracuse we enjoyed a few hours' chat and visit with our fellow-laborer, Mr. G. M. Doolittle. This was an interview we had long desired, and we made the most of the minutes as they glided into "the things that were." Friend Doolittle will, hereafter, furnish our readers with one of his thoroughly-practical articles in every issue of the BEE JOURNAL.

At Hamilton, Canada, as guest of Mr. W. G. Walton, we spent a few "happy hours"—delighting the eye with many enchanting landscapes, as well as cheering the heart with interesting conversation upon bees, and things thereunto belonging.

At Lansing, we spent a few hours at the Agricultural College, as guest of our friend and co-laborer, Prof. A. J. Cook. We looked over the magnificent grounds, and handsome buildings, and were delighted. Such an Institution is a credit to any State, as well as of incalculable benefit to the rising generation.

We have heretofore made many trips through fourteen of the States and Canada, but never was one more full of interest and pleasant reminiscences than this.

TONS OF HONEY.—One of the wholesale establishments in New York (Thurber & Co.) sold in one week of last month 56,000 lbs. of honey (28 tons), and the next week 27 tons. They expect to handle a million pounds this season. How many millions of bees have spent their *whole lives* in gathering this honey? How wonderful is nature? How persistent the untiring labors of "the little busy bee?"

Some men "know it all;" that is, all that is *worth* knowing. They never learn it of any one; it was evolved from their own massive brain! Such sneer at everything that is progressive, and rail at men of advanced ideas! These men may be sincere, but they are unhealthy and should be pitied rather than reproved. Their "dog in the manger" style of disposition, is a source of misery not only to themselves but all around them. If they live unrespected, and die unregretted, who is to blame? We have a few of such among bee-men—but only a few, we are thankful to say.

CARE OF EXTRACTED HONEY.—The San Francisco *Chronicle* says: "Los Angeles and San Diego counties can vie with the world in the quality of their honey, and the only drawback to extensive foreign demand has been the careless and diversified method of marketing. We are glad to see that there is to be a change in this regard in the southern counties. The process of packing to be pursued in future is described as follows: Upon receiving the extracted honey they place it in large settling tanks of 3,000 pounds capacity, and this, securely covered, is left exposed to the rays of the sun for a day or so. By this process all impurities are eliminated, rising to the surface, and the pure honey is drawn off at the bottom. It is then put up in neat tin cans containing two pounds each, and packed in cases of two dozen each, handsomely labeled. The design is to ship direct to Liverpool, where, with proper management, an extensive market can be worked up."

Honey for Manufacturing Purposes.

The following from the *N. Y. Journal of Commerce* will be read with interest by honey producers:

New York, Sept. 13, 1878.

Editor of the Journal of Commerce:

The bee-keepers in the United States are now securing so much honey that it is becoming an important question how we are to find a consuming outlet for it. Heretofore it has been used simply as a delicacy for occasional table use. You will do a good turn to a good class of men by answering the following questions: Can honey be converted into sugar? To what use can honey be put in manufacturing? What is its relative value as a substitute for malt in the brewing of beer and ale? At what prices could brewers use it? By answering the above you will oblige the owner of 2,000 colonies of bees. J. S.

REPLY.—Here, now, is a fine chance for American chemists. A fortune may reward the man who discovers some entirely new use for honey. We summon American chemistry to answer the question—"To what use can honey be put in manufacturing?" If our correspondent means by "sugar" the crystallized article, we would say that, by no known process, can honey be converted into that. Most of its saccharine matter has the properties of grape sugar and cannot be changed into the cane variety by any means yet discovered. And, if this could be done, the operation would not pay, owing to the cheaper materials of the cane fields. Only a series of careful experiments could ascertain the value (if any) of honey as a substitute for malt in brewing ale and beer. In both articles there is a constituent of grape sugar, but they differ in other respects, and the best honey might make the poorest ale. Repeated trials on a large scale alone could decide the question whether honey at a price far lower than the present could be substituted, with a profit, for malt. The latter is now far the cheaper, pound for pound, and the experience of ages seems to have settled on it as indispensable for good brews. Honey, we would add, long ago found its way into a drink called "metheglin." This is a mixture of honey and water, boiled, allowed to ferment and sometimes highly spiced. Mankind has not liked it well enough to accept it in lieu of ale—even the poorest home-brewed.

But what shall be done with all the honey? We will tell inquirers how to make a market for honey or any other

good thing. Put up a pure article in a neat style and *advertise it very freely*. There is money in that every day in the year. Future customers are all over the world, only waiting to be reached by proper advertising enterprise, and ready to buy honey for that use (the table) to which it is best adapted.

Honey producers can soon test the value of advertising by getting a few honey pamphlets—with their names as producers printed on them and scattering them over their neighborhood. That we believe is the very best way to create a home demand.

Novice intimates that honey in his one-pound sections sells readily in Chicago for 4 cents per pound more than in prize boxes! That is *too thin*! We have them in our office, offering them for sale side by side with the prize boxes, at the same price—giving purchasers their full choice of packages; and it is a positive fact that they take ten of the prize boxes to one of the Novice sections!! "*Facts are stubborn things!*" "*Figures will not lie!!*" These are trite sayings, but sometimes are very forcible! "Beg pardon, Chicago is a great city," says Novice. In this, at least, he speaketh truly,—but its greatness is not yet satisfied with honey put up in "penny packages."

"LIFE AND HEALTH" is the title of a new eight-page quarto paper, devoted to "physical, mental and moral" development. The first number is on our desk, and is full of good things. It will be published monthly at 30 cents for 6 months. It is published by Dr. Hicks, Wernersville, Berks Co., Pa.

The Alabama State Fair takes place in Montgomery, Nov 5 to 9, 1878. We have received a catalogue and invitation to be present, but cannot attend. Let some fine specimens of honey be on hand. No opportunity should be lost to exhibit the products of the Apiary. Judicious advertising will always pay—and that could not be injudicious. It is high time bee-keepers were awake to their own interests.



Austro-German Congress.

Redaktion des Bienenvater aus Böhmen, Prague, Austria, Sept. 28, 1878.
 HERN THOMAS G. NEWMAN, Editor American Bee Journal, Chicago :

Dear Friend :—The German and Austrian Congress of Bee-Keepers, will be held in Prague in August (day not yet fixed), 1879. There will be in connection with it an international exhibition of bee-keepers' furniture. Please employ all of your influence to have as many as possible attend, as our guests. Be well assured that you will receive our kindest and most enthusiastic reception. Accept our most cordial salutations, inviting you and the members of the National Association of America to attend, and you shall receive our thrice-fold welcome.

Our newest invention is made by a clergyman, M. Knoblauch ; it is a device hitherto thought impossible—artificial cells and covering for them. This he has already done at the Congress at Griefswald, in the presence of 500 bee-keepers there assembled.

Expecting your favorable answer, I remain truly your friend and servant, R. MAYERHOFER.

The above letter came to hand since the close of the session of the National Convention. As that body has voted to have us represent it at the Austro-German Congress, as well as at other European Conventions of Bee-Keepers, provided we can go when the time arrives, we have pleasure in accepting friend Mayerhoffer's invitation to attend, and unless something unforeseen shall hinder us, we expect to be present and take part in the deliberations of that honorable body.

KIND WORDS.—During our brief stay in Hamilton, Canada, in company with that sterling apiarist, Mr. W. G. Walton, of that city, we called upon our quondam friend and co-laborer in the art preservative, Mr. Geo. M. Bagwell, Superintendent of the *Times* Printing Establishment. The next issue of that excellent and valuable paper contained the following :

We received a pleasant call to-day from Mr. T. G. Newman, editor of the *AMERICAN BEE JOURNAL*, Chicago, Ill., the best publication of its class in America. He is the guest of Mr. W. G. Walton, during his stay here. Mr. Newman was unanimously elected President of the North American Bee-Keepers' Association in New York City, at the annual Convention on the 8th inst., and was also appointed a representative to attend the Congress of European Bee-Keepers, to be held at Prague, Austria, next August, as well as to attend the several Conventions of the Bee Associations in England, France, Italy, Germany and elsewhere, providing his other duties will admit of his absence. He will, no doubt, exhibit the progress of American scientific bee-keeping at each of the Conventions, if he can be present.

☞ We regret to learn that our friend W. M. Kellogg, was taken sick at the Convention at New Boston, Ill., and has not recovered sufficiently to make out a report yet. It may be expected in our next.

And of the rest of the words of this Convention—are they not contained in the Book of Kings, vol. vi., 11 ?

In language of similar import did the writer of the ancient Chronicles take comfort ! May we not draw consolation, also, from the fact that the essays not contained in this *JOURNAL*, though read at the National Convention, are inserted in the *Magazine* for this month, and will duly appear in the *JOURNAL* for December ?

A large portion of the space of this issue of the *BEE JOURNAL* has been given up to the "Proceedings of the National Convention," knowing full well that thousands are anxiously waiting to ponder them. In order to do this, we have had to omit some departments altogether, and curtail others. This, however, we feel sure our readers will approve.

PETRIFIED HONEY COMB.—While in Seneca Falls, N. Y., our friend and Bro. Wentworth, presented us with a piece of petrified honey comb, which he had found on the stamping-ground of old Chief Seneca, in that county. The cells are perfect (but small) and the capping still more so. What stories could it tell, had it the power to communicate ? Bees of some kind (but perhaps smaller) must have existed on this continent ages and ages ago—long previous to the present race of humanity now inhabiting it. Perhaps even before the ancient "mound builders," whose "coming and going" may have been witnessed by the tiny little bees of a continent, not only unnamed but wholly unknown to the rest of the world in the ages of the "long ago" We have added it to our Museum for the amusement of our visitors.

☞ There are 6,000 colonies of bees in Jefferson Co., Wis. That is what we should denominate "over-stocking"—if such a thing be possible !

☞ Mr. H. K. Thurber gave his individual check for \$1,000, to be applied to the relief of the yellow fever sufferers in the South.

Notes and Queries.

Wilmington, N. C., Oct. 7, 1878.

FRIENDS NEWMAN: I enclose samples of two weeds, with labels attached. No. 1 grows taller than No. 2, averaging about 3 to 4 feet high. No. 2 grows from 1½ to 3 feet high, and its bloom seems all at top of plant, and more compact, round and shapely heads of bloom than No. 1. Both have yellow blooms, and the bees work on each with avidity. While No. 2 grows all about the old fields, No. 1 seems to seek moist, rich locations, on the margins of swamps, marshes, &c. They have been in bloom 12 days. Please give name of each in JOURNAL for November.

R. C. TAYLOR.

These are both solidagos or golden rods. They are illustrated in Manual of Apiary, p. 243. Species of this genus grow on all kinds of soil,—light, heavy, dry or damp. The honey is of a rich yellowish-brown color, of beautiful flavor, and the plants are covered with bees from early August till frost.

A. J. C.

Wyandotte County, Kansas, Sept. 25, 1878.

I enclose insect. Please give me its scientific and popular name, and tell us something of its habits if it has any, as far as known. The people here tell me it is known as the sweat-bee; that it burrows in the ground like a bumble-bee; that it is more aggressive in its attacks, and that its stings are more painful than either the bumble or honey-bee. They say there is another bee still more aggressive than this one, and more painful in its sting, though of smaller size. Should I be able to get a specimen will send it to you if desired.

W. P. HOGARTY.

The insect was badly crushed, yet I was able to identify it as a megachile or tailor-bee, the same as described on p. 36 of Manual. It feeds its young or larva on pollen, which it not only carries on its legs but often dusted all over its body, especially beneath. Its leaf-cutting habits, as also its strange cells, are fully described in the Manual. A. J. C.

Columbus, Kan., Oct. 7, 1878.

Please name enclosed plants. Nos. 1 and 2 are covered with bees every day. There appears to be 5 or 6 varieties of No. 3, but the bees work on this one most. No. 4 is nearly out of bloom; the bees work on it most from the middle of August to the middle of September. No. 5 is the best honey plant that we have; the bees work on it from the first of September until hard frost. I had a single colony gather 150 lbs. in 15 days from this plant. My bees are all in good condition for winter. Will winter on summer stands as usual.

H. SCOVELL.

No. 1 and No. 2 are asters. These are referred to and figured on p. 243 of Manual. As there stated they are very admirable as honey plants, while many of them—including the ones sent by Mr. Scovell, are very beautiful. There are about two score of species of this genus in our country, and it is not easy to identify the particular species from dried specimens, especially when but a part of the plant is sent; nor is it necessary, as all asters are favorites with the bees.

No. 3 is a solidago or golden rod. For figure and description see Manual, pp. 242 and 243. This belongs to the same

family as the asters, and it would seem that all through our country, from Lake to Gulf, and from Ocean to Ocean, there might be a strife between the asters and golden rods as to which should yield the greatest measure of nectar during the autumn harvest. The species of solidagos are about as numerous in the United States as are the asters.

No. 5 is also of the same family. It belongs to the genus bidens, and is so like the flowers of the genus coreopsis that only the botanist can readily determine them apart. I speak of these in Manual, p. 244. These plants are also very valuable for bees.

No. 4 is cassia chamæcrista or partridge pea, the same that was received from A. M. Crosby of Knoxville, Iowa, and named in AMERICAN BEE JOURNAL for September, p. 321.

A. J. C.

Washington County, Va., Oct. 22, 1878.

I enclose in an accompanying box, a specimen of a plant growing abundantly in south-western Virginia, and from which bees are storing honey. They gathered more from this plant in the six days of October, than in the previous sixty from all other sources together. A drouth commencing about the middle of July and lasting six or eight weeks, cut off the supply of honey, and colonies were so much reduced in numbers as well as stores, that they were likely to go into winter quarters in a starving condition, but when this plant came into blossom, they went to work with desperate energy, and in a few days had all available combs full of honey, or, to use an old Virginian's expression "are mighty rich this fall." Please give the common and botanical name through AMERICAN BEE JOURNAL.

G.

The plants which are the subjects of such high praise are asters, which, from our observations here as well as statements made by correspondents (see AMERICAN BEE JOURNAL for October), we are led to believe rank very high as honey plants. They seem also to be indifferent to latitude and climate, nor are they to be ignored on the score of beauty. The flowers before me, as also the ones received last month, are worthy to grace the costliest vase, or decorate the finest parlor.

A. J. C.

ALSIKE CLOVER.—In regard to enquiry made by a correspondent in the Sept. No. of AMERICAN BEE JOURNAL, allow me to say: That alsike clover is far better for feeding purposes than red clover. Stock eat it more readily and in preference to other kinds of hay. The only objection to it is, that it has no second growth as with the red. It should be sown with "timothy," as it grows very rank on rich ground. The flavor of alsike honey cannot be surpassed.

O. H. TOWNSEND.

Hubbardston, Mich.

Mrs. Isabella D. Lee, of Lonoke, Ark., has land situated in an excellent district for fruit and bee-culture and wants an experienced man to settle there, and start an apiary. If any such are thinking of a new location, a correspondence might be of mutual advantage.



Foreign Notes.

☞ We notice in an English paper of a sale in Lisbon, Portugal, of *sixty tons* of beeswax. "Prodigious."

L'Apiculteur, the French Bee paper, for October, has an article descriptive of the New Langstroth hive, with the manipulating side, illustrated by cuts. Also cuts of the cases for 3 prize boxes as used in that hive. The French apiarists are taking advanced ground and will find the New Langstroth an excellent hive for their purposes.

Foreign Items,

GLEANED BY FRANK BENTON.

THE tenth volume of "*Brehm's Thierleben*" has recently appeared.

OTTO SCHULZ, of Bukow, near Frankfurt-on-the-Oder, offered 1,000 marks to the manufacturer of comb foundation, (the same to be exhibited at the bee-keepers' association in Greifswald), whose product should equal his in its beauty, quality, and practical use.

At the bee-keepers' exhibition in Hagenau, Alsace, a colony of Italian bees having wasp-like bodies was exhibited. They were bred in Bellinzona, Canton of Tessin, Italian Switzerland.

A NOTICEABLE and very practical feature of European bee-conventions is the exhibition that is usually held in connection with each one of them. This is particularly the case in Germany, Italy, and France. At these exhibitions specimens of honey, wax, bees, hives, implements, bee-books, etc., are shown. Prizes are given to the meritorious.

PROF. DR. BUTEROW, of St. Petersburg, Russia, writes: "Except in the provinces of the Baltic sea, we have, unfortunately, very few bee-keepers'

associations; only in Kiew there is a society, and in Novgorod a bee-association is about to be established. Our bee-culture shows no especial progress—is rather less flourishing than it was in olden times; however, theoretical knowledge and rational management are really spreading themselves more and more in Russia, and we may well hope that a true period of development in the bee-culture of the country is at hand. The free imperial agricultural society aids, so far as it can, in popularizing bee-culture in Russia; in its journals, there is always a department devoted to apiarian topics, so that this journal may now be looked upon as the organ of Russian bee-culture. The association has published, from time to time, descriptions of various apiarian implements, in order to bring them before the Russian bee-keepers as models. The works of Dzierzon, and of Von Berlepsch (the latter under my editorship and published by the imperial agricultural society), have appeared in Russian translations, and are certainly very influential in the spreading of rational bee-culture in Russia."

TH. VON HELDENREICH, Director of the botanical garden and museum of the University of Athens, Greece, makes the following statements in answer to questions:

1st. Bee-culture in Greece is not an unimportant branch, particularly in Attica, (the honey of Hymettus still keeps up its reputation), in Candia, then in South Euboea; in the vicinity of Karysto, is found a peculiar and delicious honey smelling of roses, called *rhodomeli*, that is, rose honey.

2d. Movable-combs have not been introduced anywhere, and in general arrangements are very primitive; nothing can be said of scientific knowledge among bee-keepers, who are mostly simple country people.

3d. Bee literature does not exist at all.

4th. Apicultural societies are also wanting.

Correspondence.

For the American Bee Journal.

Glucose, for Grape Sugar, for Bees.

In answer to my affirmations that solid glucose is as dear as sugar, and less wholesome to feed bees, Mr. Root, in the October number of *Gleanings*, published a long letter, not from a learned chemist, disinterested in the question, but from an interested party—the superintendent of the Davenport glucose factory.

My letters against the use of glucose were not of sufficient importance to entitle them to notice, but the praises of this article are entitled to a place in *Gleanings*. Such is the way that editor practices impartiality!

In that letter (on page 316 of *Gleanings*), Mr. Louis Best, superintendent of the Davenport glucose factory, writes:

"Glucose is a heavy gummy syrup of about 40 per cent. glucose, or grape sugar, 46 or 48 per cent. dextrine (liquid glue), and 12 to 40 per cent. of water."

Of course Mr. Best omits to say that glucose contains lime, sulphuric acid, sucrate of lime, etc. He continues:

"Grape sugar is a concrete mass, without crystallization, of 66 to 70 per cent. grape and glucose sugar, 5 to 6 per cent. dextrine, and the balance water.... Our grape sugar, for feeding bees, is guaranteed to be free from sulphuric acid, and never contains more than 1-50 part of 1 per cent. of sulphate of lime."

At the Bee-Keepers' Convention at Burlington, in May, a bee-keeper exhibited a lump of solid glucose, which he had received from the Davenport factory, through Mr. Root. A chemist, who was there, took a small part of this glucose, and in the afternoon produced a small vial containing about an ounce of a liquid; at the bottom of the vial was a whitish deposit about $\frac{1}{4}$ of an inch thick. He told us that this white deposit was *terra alba* (white earth) or chalk, contained in the solid glucose that he had taken in the morning.

Here are two affirmations. One from Mr. Best, who says that his solid glucose contains at most 1 part of sulphate of lime in 5,000 parts. The other from a disinterested chemist who, after analysis, shows an immense amount of chalk.

I wonder why bees are so slow in taking a substance containing 66 to 70 per cent. of sugar, while, when they visit the flowers, they bring into the hive a nectar which often contains less than 10 to 20 per cent. of sugar; and especially when we see them eagerly suck milk, wine, beer, cider, etc., if these beverages are mixed with 25 per cent. of sugar, or even less.

Mr. Best acknowledges that his solid glucose has only a sweetening power of 33 per cent., when compared with pure sugar. Then what becomes of the other 35 per cent. of sugar that this solid glucose is said to possess? Honey contains 86 to 88 per cent. of grape sugar. Its sweetening power is equal to 86 or 88 per cent.

Bees live on sugar, and pure sugar is the best food to give them. In solid glucose there is 33 per cent. at most of sugar, which is apparent. In what combination is the other 35 per cent., which are concealed, supposing that they exist? Is not this supposed

combination disliked by bees, since they take glucose reluctantly?

Wine made with the addition of honey becomes clear, and ceases fermenting in the fall. Wine made with the addition of solid glucose never ceases to ferment, on account of the sulphuric acid that it contains; it is never well clarified; its color is impaired. Wine made with honey shows its alcohol with the acrometer, while wine made with glucose is heavier than water, and cannot be weighed, as to its alcohol, but with a still, on account of its mineral matters.

How can Mr. Best explain these differences, as he says that the sugar contained in both honey and glucose is the same grape sugar, mixed only with 5 or 6 per cent. of dextrine and water? How is it that liquid glucose, which contains but 40 per cent. of sugar, is worth commercially 5 cents per pound, while solid glucose, containing 70 per cent. of sugar, is sold for 3½ cents? Then the best product is the cheapest. In France it is the reverse: 2,000 lbs. of starch give 2,800 lbs. of liquid glucose. The same quantity of starch gives only 1,867 lbs. of solid glucose. When liquid glucose is worth 5 cents in France, solid glucose is worth 7½ cents. See *Chimie industrielle de Payen*. The present price of glucose in France is: Crystal, 60 to 62; liquid, 40 to 42.—*La Culteur*, Sept. 29, 1878.

Mr. Best is right when he says that the manufacture of solid glucose is not forbidden in France. It is the manufacture of granulated glucose, which is charged with such a heavy duty that it cannot be manufactured with profit.

I read, several months ago, that there were riots in Frankfurt-on-the-Main, and in several other cities of Germany, on account of the rise in the price of beer, this increase of price being caused by the brewers being prohibited from using glucose in its manufacture.

In addition to the letter of Mr. Best, Mr. Root quotes from Mr. Langstroth's book, page 273. According to the editor of *Gleanings*, Mr. Langstroth says, in reference to grape sugar:

"It can be obtained at a much lower price than cane sugar, and is better adapted to the constitution of the bee, as it constitutes the saccharine matter of honey, and hence is frequently termed honey sugar."

"It may be fed either diluted with boiling water, or in its raw state, moist, as it comes from the factory. In the latter condition, bees consume it slowly, and as there is not the waste that occurs when candy is fed, I think it is better winter food."

After reading the above quotation, I opened Mr. Langstroth's book and read:

"Mr. Wagner has furnished me with the following interesting facts, translated by him from the *Bienen-Zeitung*:

"The Rev. Mr. Kleine says: 'Grape sugar, for correcting sour wines, is now extensively made from potato starch, in various parts on the Rhine, and has been highly recommended for bee food. It can be obtained at a much lower price—' etc. Then follows that quoted by Mr. Root.

Mr. Root, to help his bad cause, has falsified the quotation, by giving it as the opinion of Mr. Langstroth, while it was only a quotation from a German bee paper!

This falsification will not increase our confidence in the veracity of the editor of *Gleanings*.

I have received from the father of bee-culture in this country, a letter from which I copy the following lines:



"Oxford, O., October 2, 1878.
 "MY DEAR SIR:—Please send me your petition, and I will get you some signatures. In the Bee Convention, at Cincinnati, in 1878, I expressed the hope that the time might soon come when extracted honey could be sold at a price which would make it no longer profitable to adulterate it with sugar. That time has about come. I do not believe that either sugar, syrups or honey can be produced profitably at a price which will deter unprincipled men from adulterating them with glucose. Very truly your friend,
 L. L. LANGSTROTH.

I think this letter, considering its date, a kind of involuntary protest against the course of the editor of *Gleanings*, and the use of his name in favor of glucose!

My friends, I fear this season will prove that comb-honey can no longer be produced at remunerative prices, and that you have to turn your attention to the production of extracted honey. Then is it not to your interest to follow the example of the greatest bee master of our age, by sending a postal card to me for a copy of the petition, to have it signed by your neighbors and returned?

Hamilton, Ill.

CHAS. DADANT.

For the American Bee Journal.

Purity vs. Good Working Qualities.

FRIEND NEWMAN:—Much has been said lately, on the standard of purity, and we have been led to ask ourselves the question, can we adopt a standard of purity, that will always secure to us the best working bees? We can see, that it would be easy, for friends Alley and Cary, to adopt a standard of purity, as queen breeders, but for us, as honey producers, to adopt the same standard would be quite another thing. The workers, from different queens, of the same color, and general appearance, show a vast difference as to working qualities; at least such is our experience.

In the spring of 1877, while changing a swarm from one hive to another, we noticed a fine looking orange-colored queen, with the workers all well marked. A neighbor who keeps several colonies of bees was present and remarked, that he would prefer a darker colored queen for business, and we agreed with his decision. No further notice was taken of the colony than of others, till about June 25, when our bees were nearly through swarming. This one had not swarmed but had 60 lbs. of box honey nearly ready to come off. July 3, they gave a fine swarm which was hived. Although the parent colony had none of its queen-cells cut, it never offered to swarm again, and the result, at the end of the season, was 195 lbs. of box honey from the parent and 114 lbs. from the swarm or 309 lbs. from the old colony, in spring.

The queen reared in the old hive was nearly a duplicate of her mother and both colonies wintered without the loss of scarcely a bee, and consumed but little honey in proportion to some of the others. The past season they showed the same disposition, not to swarm, till late; and from the colony with the old queen, we obtained 161 lbs. of box honey, while there were but few other colonies that gave us over 100 lbs. We have reared nearly all our queens from that old queen this season, and find them all to be very prolific layers, as is their mother. We

should be entirely satisfied with them, were it not that a part of the young queens are quite dark, and one or two produce some black bees. We have always claimed that a queen reared from a pure mother would never produce a black worker, no matter what drone they met, and have ample proof that our position is correct. Consequently this queen cannot be pure, and if we were to rear queens for sale, as do friends Alley and Cary, we should not dare use this queen to breed from, but for our purpose she is worth more than a dozen of any other queens we have that come fully up to a standard of purity.
 G. M. DOOLITTLE.

Light-Colored Drones.

REV. M. MAHIN, D. D.

In the October number of the *JOURNAL* Mr. J. M. Brooks asks me some questions which I will endeavor to answer. He says: "I will ask our friend, If you have a queen that will duplicate herself in her queen progeny, and produces worker bees that show distinctly (without being filled with honey) the three colored bands, and whose drones are as even and uniformly marked as are the workers, with 3 broad colored bands, all other good qualities being present—industry, size, gentleness, etc., I ask, are such queens pure Italian? If yes, why? If they are impure, why?"

I have never seen a queen or colony such as friend Brooks describes. I have never seen one that would uniformly duplicate herself in her queen progeny. I have never seen a colony of Italians having drones uniformly marked with 3 broad colored bands. The colony coming nearest it was not more than half Italian. I do not say that queens producing very light-colored drones are necessarily impure, but that light-colored drones are no evidence of the purity of the queen or of her worker and queen progeny. I have had many queens that had mated with black drones, whose drone progeny were as well marked as any purely-mated queen I ever had, or ever saw.

I believe it to be a fact that queens that have some black blood in them sometimes produce workers and drones that are lighter in color, than any pure Italian bees ever are in Italy or anywhere else. A pure black queen that has been mated with an Italian drone, will produce a few bees lighter than pure Italians, though the majority may show no trace of Italian blood. I cannot account for it, but I have observed it in most colonies, mixed in that way that I have seen. And, if I wanted to breed very light colored drones, I would select a queen whose mother had one-seventh or more of black blood, and had mated with a pure Italian drone. I would not care what kind of a drone the queen herself had mated with, as I believe the Dzierzon theory. If we could breed a strain of bees, which should be uniformly and distinctly marked, drones as well as workers, it would be desirable; but if there are any such, I have not seen them. I am satisfied with having the workers uniformly three-banded, the bands being free from spots of darker color.

Conventions.

National Convention.

The North American Bee-Keepers' Association met in Cooper's Institute building, New York, on October 8, 1878, President Nellis in the chair, Thos. G. Newman, Secretary.

The minutes of the last meeting were read and approved.

A number of persons gave in their names and paid their membership fees.

The following delegates from local societies announced their presence to co-operate in behalf of their Associations:

B. O. Everett, N. W. Ohio Convention.
 A. E. Manum, Addison Co., Vt., Association.
 J. W. Porter, Albemarle Co., Va., Association.
 G. W. Batty, E. D. Clark and L. C. Root, North-Eastern Bee-Keepers' Association.
 A. Reynolds, Western Illinois and Eastern Iowa Convention.
 Theo. F. C. Van Allen and H. W. Garrett, Albany Co., N. Y., Association.
 T. O. Peet and E. Parmly, N. Y. City Association.

President Nellis then addressed the Convention, as follows:

Ladies and Gentlemen of the National Bee-Keepers' Association:

I cannot but feel thankful to you for the confidence you manifested in choosing me as your presiding officer, and yet I have a sense of regret that I have so poorly performed my duties and advanced the interests of the Association.

Another year of care and labor has passed since last we met, and I hope not without its lessons of knowledge and profit. We have great reasons to thank the Father of Mercies for a continuation of our being, and for the temporal blessings that we, as a nation, and especially as a class, enjoy.

I trust we have assembled to compare our experiences in a spirit of generosity, and that we will carefully guard against quoting as fact, what with us may be only theory. Above all, let our deliberations be characterized by harmony, and by a sense of delicacy that shrinks from saying or doing things in a deliberative body that may wound the feelings of any present.

Although the honey-bee has been domesticated since the earliest period of man's history, yet, not till within a recent date, say half a century, has its culture been made an exclusive or remunerative business.

The apparatus used and management adopted have been so greatly improved, and the business has lately assumed such wonderful proportions, that a retrospective glance astonishes, and the inquiring mind, peering into the future, exclaims, "What next?"

Although the inventions and improvements of the past year may not have been equal to some of its predecessors, yet we see marked advancement. Bee-keepers are fast adopting standard hives, of which we now have less than half a dozen. Then, too, surplus honey is being stored more uniformly in neat, marketable packages. (Thanks to Messrs. Thurber, for assisting to this desirable end by offering a gold medal.)

The use of comb foundation is becoming universal, and the article has been so much improved that the two greatest objections to it, namely, sagging and breaking down, and a thick, hard centre in box honey that is unpalatable and easily detected, these objections, I say, are now removed, the first by incorporating fine wire in the sheets; the latter by making the bottoms of cells thinner than in the natural comb. I will explain no further. Samples are here on exhibition that will convince the most skeptical.

Recent experiments convince me that at no distant day grape sugar is destined to play an important part in the economy of honey production. It is valuable for stimulating brood-rearing, and seems equally useful as winter food for bees in conjunction with honey. Its low price and adaptability to the purpose named, will soon bring it into general use among bee-keepers.

Intelligent men, whether engaged in a business or contemplating it, desire to know something regarding its future prosperity and advantages. To my mind, the future prospect of bee-culture was never better. So long as the inhabitants of the globe consume over 2,500,000 tons of cane sugar per annum, so long will bee-keeping not be overdone. We must study to economize the labor of production, till we can make a profit and sell honey at the price of cane sugar. Then will we find ready sale for our products in our own neighborhoods, and save the expense and anxiety of marketing, now so manifest.

To accomplish this, we must be energetic, and have a thorough knowledge of the business. In my opinion, too little attention is paid to the fact that localities can be overstocked, with bees—the result no profits, and the owner does not know why. I am convinced that in Central New York, to afford the best results, not more than 60 colonies should be kept on a section (640 acres) of good, fertile, honey-producing land. We grant, there are localities that will sustain three times this number; but I speak in general terms.

From a considerable correspondence, and from, to me, ascertained facts, I believe this average would apply to most other parts of our country. Small apiaries, in the hands of experienced men, produce marvelous results, the public statements of which are not generally accredited. Investigation shows that with these men all things are done properly and in season. A man residing not many miles from me, has for 6 or 8 years kept just 60 colonies, and during that period he has averaged a yearly production of 6,000 lbs. of box honey. He does not indulge in wild aspirations. He has mastered his trade, and has learned the capacity of himself and of his locality. He is accomplishing far more than many with five times his number of colonies, who bluster about, and perhaps ultimately give up bee-keeping in disgust. We must not draw exaggerated pictures of the profits to be secured in bee-culture, but we can say to the man seeking a fair recompense for his labor, that in no other business do we see better prospects for success with so small a capital stock. I know many will accuse me of having an axe to grind, as I sell supplies for the apiary;



but I assure you I am expressing a candid opinion.

I often envy the independence of the man who, when his bees are housed for the winter, has a considerable period in which to visit his friends, and in which to improve his knowledge and intellect. The social advantage of these periods cannot be overestimated.

Of course, I would advise all apiarists to make ample and intelligent preparations before the busy season comes, for, be it remembered, in summer, the man with leisure in winter has his abilities taxed to their full capacity.

I apprehend not so much the over-stocking of the markets with honey as of localities with bees. Note this carefully, and locate your apiary so as not to injure each other.

The great honey product of California will very soon be transported to Europe directly by water, thus leaving us a clear field. Our duty, then, is to thoroughly master our occupation, and use our influence to bring honey into general use—first, by making it compete in price with other sweets; and secondly, by educating the public to its general use. Mr. Newman, of the *AMERICAN BEE JOURNAL*, has issued a very useful little work that all bee-keepers should circulate in their neighborhoods. I refer to the pamphlet, "Honey as Food and Medicine."

Our English brethren, although not as well advanced as we in bee-culture, have put us to shame in the matter of conventions and displays of bees and their products. I think their manner of exhibiting the manipulations of bees to the general public worthy of our consideration and emulation.

At our last meeting a committee was appointed to consider the best plans for placing the National Association on a permanent footing. I hope the committee can at this time report some feasible method.

System and concerted action are what we need to permanently establish our occupation, and make it take rank among the important industries of the nation. No stronger argument can be presented for encouraging the representative plan of holding conventions than this: That system in management, system in the style of surplus receptacles, and system in marketing of honey, can be developed, while at the same time we come in contact with each other, and with the buyers and consumers of our products, and thus learn their wants and our deficiencies. "Order is heaven's first law," and order and concerted action are necessary to the proper development of any business.

In one of our papers I notice an article regarding the purity of Italian bees, and the writer urges the necessity for an established, recognized standard by which to determine the purity of those bees. I fully endorse that suggestion, and recommend that the matter be considered in this Convention. I throw out as a suggestion, that possibly we can improve the hardy qualities of our bees. You are aware that flies, wasps, bumblebees, and many other insects, do not chill or get benumbed as quickly as honeybees. By long and careful breeding, may we not improve our bees in this particular, making them harder and able to work in weather

too cool for them now? I leave this matter to your consideration.

In closing, let me draw your attention to a bad precedent established at the last Convention, viz.: The giving of a present to the retiring President. I suggest that this be not repeated, lest it become an established and pernicious custom.

Requesting that with unselfish purpose, we adjourn from here to some prominent city of the West, I shall not burden you longer.

The Secretary read the following as his report for the past year:

To paid for tables, &c., in Am. Institute Fair. \$15 50
To paid for printing addresses and postage. 25 00

Received from late Treasurer. \$5 00
Received membership fees. 34 00

\$39 00

Deficit. \$1 50

In accordance with the resolution passed at our last meeting, your Secretary has had 1,500 copies of "The Facts for the People" printed and mailed to the most influential papers of the nation, and has had marked copies returned containing the Statement of Facts.

Postage, 1,500—1c. \$15 00
Envelopes and printing 1,500 copies 10 00

\$25 00

Report of committee on "the best means of promoting and advancing the interests of the National Bee-Keepers's Society, and to increase its usefulness:"

"Strike while the iron is hot," is a common saying, and a very good one. It indicates the danger of delay and the importance of prompt action; but Cromwell said, "Make the iron hot by striking,"—thus enforcing another thought, that "Where there is a will there is a way;" that to good sense, industry and perseverance, *no right thing* is impossible! As by continual striking, the cold iron can be heated, so, by constant and well directed work, the most difficult undertakings may be conducted to success!

Two years ago, when we met at Philadelphia, the question was: "Shall the Society continue to exist?"—now it is: "How to increase its usefulness?" We have had to take Cromwell's advice, and "Make the iron hot by striking!" Now let us "not be weary in well-doing"—and continue the vigorous use of our sledge-hammers; let us demonstrate that we both *can* and *will* bring our undertaking—though it be difficult—to a complete success.

I will not weary your patience, but come at once to our recommendations. Three things are essential to the *usefulness* of the Society, and these three things will "promote" and "advance" its interests:

1. It should foster *Local Societies*, seeking a delegation from such at its annual sittings—making this Society, as nearly as possible, a representative body.

2. It should encourage a *Local State Exhibition* once a year, having manipulations with bees in each State and Territory.

3. It should give its hearty support to these "Bee and Honey Shows," by appointing a suitable person or persons to attend them, and in its name and by its authority, to award a suitable medal for the best exhibit of honey in the most marketable shape, and

a diploma for the most expert handling of bees.

In order to do this, let the amendments to our Constitution of last year be reconsidered, and sections 3 and 10 be reinstated—electing a Vice President in each State and Territory, who shall co-operate with the Society's Representative, in awarding the bee and honey-show prizes in his locality.

To do this, financial aid will be absolutely necessary; but if it be done, a thousand members can be obtained, and the funds thus raised will carry out the provisions of these recommendations, as the Representative should be entitled to call upon the Treasurer for a mileage fee of say 3 cents per mile, to cover traveling expenses to and from these honey and bee shows, whenever a medal is to be awarded.

We recommend that a committee be appointed to procure medals and diplomas.

THOMAS G. NEWMAN.

Mr. King, another member of the committee, remarked that the report, as a whole, met with his approval, though some details should be discussed to ascertain the best means of obtaining the desired results.

The report was adopted, and Articles 3 and 10 of the Constitution were reinstated in their former position, having been suspended at the last session.

The following were appointed a committee of arrangements: T. G. Newman, L. C. Root and E. J. Oatman.

Dr. Parmlly was appointed Secretary *pro tem.*, in the absence of the Secretary, who was engaged on the committee of arrangements.

A. J. King then read the following essay on the

RISE AND PROGRESS OF BEE-CULTURE.

All the great inventions and discoveries which have developed the resources of the world to a greater extent within the past century, than in all previous time since the creation, have had their origin, more or less remote, in the ages past. The various applications of steam, electricity, the mechanical powers, and the wondrous developments of natural science which have so changed the face of all nature, and the currents of thought within the past few years, are but the accumulations and scientific combinations of ideas and inventions, scattered all along the line of the ages, by the past generations in their onward march from ignorance, superstition and bigotry to intelligence, knowledge and true science. Of all the fields of research in the development of National industries, none are more fruitful, inviting, and instructive to the Antiquarian than the history of the culture of the honey bee, for in all his researches, he will find himself in the company of the wisest and best minds of all ages. Poets, Naturalists, Philosophers, and Doctors of Divinity are all largely represented in its history. Honey was regarded by the Ancients as a present from the Gods, and with it their libations were made around the tombs of those dear to them. With honey they preserved their corpses. With honey their Gods were appeased by pouring it on their altars and the heads of the victims. Honey was the only sweet known until

within comparatively modern times. The Holy Scriptures abound in figures of the highest joys and the most exquisite sweetness, drawn from the bee and its delicious product. Aristotle pronounced the honey bee a magazine of the virtues. Virgil, the most elegant of the Latin poets, calls it a ray of the divinity, and chose it as the subject for the best of his Georgics. Shakspeare, Milton, and, in fact, all the prominent writers, have bestowed on the bee, at least a passing notice. DeMontfort, who, in 1646 wrote a work on bees, estimates the number of authors who had written on this subject previous to his time, at between five and six hundred, the larger part of which are lost, but traces of most of them have come down to us through works published in the 17th century. These works, one of which was written by DeMontfort, seems to unite the ideas of the Ancients with those of his own time. And the most romantic and foolish reveries stand side by side with sensible views, and in many instances the two are so badly mixed, that to give in full the various views which have prevailed, at different times in the past history of bee-culture, would bring a result similar to what Milton says of the writings of the Fathers—a huge drag net, brought down the stream of time, filled mostly with sticks and straws, pebbles and shells, sea-weed and mud, with a pearl in the oyster here and there. We shall confine ourself to the merest outline of this history and endeavor to select as many of the pearls as we can, in passing.

Of the antiquity of the bee, we cannot speak positively, but the geological evidences of flowering plants, demanding insects for their fertilization, together with the remains of insect-feeding reptiles, as well as herbivorous animals, places the bee, at least presumably, ages anterior to the creation of man. The positive proofs of its early domestication are ample. The Ancient Egyptian sculpture and tablets abound with hieroglyphics, wherein the bee is the symbol of royalty, their economy being represented with a monarch at its head. In most instances these representations are *rude*, and betray a lack of close observation, as the bee is pictured with two wings and four legs; however, on one tablet of the twelfth-dynasty, the bee is figured correctly, having four wings and six legs. *Shuckard*, in his "British Bees," gives us indications of a still higher antiquity from the *Sanskrit*, wherein *Ma* signifies *honey*; *Madhupa*, *honey-drinker*, and *mad-humkara*, *honey maker*. He also traces the same in the Chinese dialects. The earliest Shemitic and Aryan records, the Book of Job, the Vedas, as well as the Poems of Homer, are conclusive proof of the early domestication of the honey bee, all of which are interesting to the student of Apiculture. Of the origin of bees, the ancients indulged the most extravagant fancies, some contending that they originated from the putrid carcases of animals,—probably from witnessing the transformation of insects as millers from moth worms, butterflies from caterpillars, etc. They give receipts to produce swarms of bees, the details of which are too disgusting to relate. Others, of finer and more poetical concep-



tions, imagined that bees were bred from purest juices of the summer flowers. Virgil expresses something of this opinion in the following from the fourth book of his *Georgics*: "Chiefly you will marvel at this custom, peculiar to the bees, that they neither indulge in conjugal embrace nor softly dissolve their bodies in the joys of love, nor bring forth young with a mother's throes; but they themselves, cull their progeny with their mouths, from leaves and fragrant herbs. They themselves raise up a new king, and little subjects, and build new palaces of waxen realms." With all these false notions of bees, the ancients still possessed much valuable knowledge. To Aristotle and Virgil we are indebted for the first description of the Italian bees, which, until recently had been regarded as a myth. Virgil remarks as follows regarding the two varieties: "For the one looks hideously ugly, as when a parched traveler comes from a very dusty road and spits the dirt out of his dry mouth. The others shine and sparkle with brightness, glittering with gold. This is the better breed. From these at stated seasons of the sky, you may press the luscious honey, yet not so luscious, as pure and fit to correct the hard relish of the grape." Again he says: "There are two sorts, the glorious with refulgent spots of gold, and is distinguished both by his make and conspicuous with glittering scales. The other is horribly deformed with sloth, and ingloriously drags a large belly."

Aristotle lived three hundred years prior to the Christian era. He wrote largely on every department of natural history. His pupil, Alexander the Great, placed at his disposal large sums of money, and employed; during his campaign in Asia, more than a thousand persons in collecting specimens for his use from all parts of the animal kingdom. From his pen and those of his pupils we are indebted for much information of value in bee-culture. Columella about the commencement of the Christian era, wrote a large work on "Husbandry," in which he gives directions for the artificial swarming of bees. Supplying queens to destitute colonies. Transferring hatching brood to weak colonies, and many other useful operations of which the great multitude of bee-keepers are ignorant to this day. Varo and Pliny also wrote in a manner which pre-supposes quite a knowledge of the brood-nest, all of which leads to the belief that in those early classic days a very advanced knowledge of bee-culture prevailed. What is known in history as the "dark ages" now came on, and for the space of nearly fourteen hundred years no progress was made in any department of natural history, but on the contrary much was lost.

At the close of this dark era of mental darkness the celebrated John Ray appeared. He collected and arranged all which survived of the previous productions on entomology. Ray was succeeded by Linneus, the inventor of the binomial system of classification which is still used by all investigators of natural science. At the close of the 17th century Swammerdam, Maraldi and Reaumur wrote extensively on bees and hives, and Shirach, Reims and others still later.

These writers discovered many of the facts connected with the secret workings of the hive, which contributed largely in raising the veil of ignorance which still enshrouded this industry and paved the way for the prince of apiarians—the great Huber, who appeared about the close of the 18th century, and with whose history every apiarist, worthy the name, is more or less acquainted. He it was who combining in one the unicomb observation frames of his day, removed their glass sides and gave to the world the first movable frame bee-hive in existence, and by the aid of which he made those beautiful experiments which placed the science of bee-keeping on the enduring basis of truth. Experiments which established one by one nearly all the wondrous facts connected with the natural history of the honey bee, by the adoption of which bee-keeping has gradually assumed national importance in all civilized countries. It is a fact that the blind Huber, through the eyes of his faithful servant, Francis Bur-nens, saw more and did more for rational bee-culture than any one man before or since his time. The correct theory once established, prominent naturalists adopted it. Authors and inventors sprang up on every hand, and movable frame hives of different patterns were soon in use in various parts of Europe. Munn, of England; Berlepsch, of Germany, and De Bovois, of France, being the most prominent, and all of whom have written extensively on the subject of bees and hives. It is estimated that from Shirach up to about 1847, one-hundred and twenty-four books were written on bee-keeping. Apiaries sprang up of larger dimensions than ever before; some nobleman owning as high as eight thousand colonies. The discovery of the refining of sugar, made by the Venetians about the middle of the 16th century, was at this time in full blast in Germany and served to distract attention from the production of honey, and sufficiently accounts for its decline about this time.

The engraving and description of the Munn movable frame hive may be found in "Cottage Gardener's Chronicle," London, 1843, page 317, also in the author's pamphlet in 1844. The De Bovois' movable frame hive, which was almost identical with King's American bee-hive, is fully described in the author's large book on apiculture, published in France, in 1847. The Berlepsch hive invented in 1840, was greatly improved in 1845, making it almost identical with the Langstroth. He further improved it and published an illustrated description in the *Bienen Zeitung*, for May, 1852. But bee-culture in Europe was by no means carried on principally by those using movable frames. On the contrary the great majority used either the straw hive, wooden gum or square box, with bars crossing the top, to which the combs were attached, and then either the storifying, nadir and collateral system were resorted to for surplus honey.

At one time in France bee-keeping was deemed of so much importance that in some places laws were enacted rendering it imperative on every cottager to keep at least three hives of bees, or in lieu thereof

to pay a certain fine into the treasury. In England large rewards were given for the finest display of honey and beeswax of one's own raising, and obtained without sacrificing the lives of the bees. Prominent men wrote books on the subject designed entirely for the benefit of the cottagers, and the same unselfish course is still pursued in Europe.

A brief mention of some of the most useful inventions and discoveries must close our notice of the progress of bee-culture in Europe. Dzierzon discovered the parthenogenesis of the queen bee, and Siebold, Leukart, Berlepsch and other eminent German naturalists demonstrated it. Dzierzon also discovered flour to be a substitute for pollen. Mehring made the first artificial honey comb foundation. Major Von Hruschka invented the honey extractor. The bellows smokers so well adapted to the apiary have been used in all parts of Europe for the past one hundred years or more. Some had straight and some bent nozzles, and some of the nozzles were hinged to the bellows and were turned at right angles for draft when not in use, and also to receive the materials for the smoke. These might have been appropriately called breech-loaders.

Reaumur first described artificial fertilization of queens in confinement. His experiment called the "Amours of the Queen Bee," made under a glass vessel with the drones is exceedingly funny and sounds very modern, but is too lengthy for notice here.

Bees came with the Pilgrim Fathers to America, and were carried by the early pioneers to all parts, until now they are to be found in every portion of the Western Continent, but owing to the many toils and cares incident to the development of a new country, together with their lack of knowledge of the subject, little attention was paid to bees until within the past thirty or forty years.

The first record of a movable frame hive in America may be found in the *Cultivator*, for June, 1840, by Solon Robinson, now of Jacksonville, Florida. The second invention may be found in the *Scientific American* for March 6th, 1847. The inventor, Mr. Shaw, of Hineckly, O., I believe is still living. Movable frames were also used by Marcus Robinson, at Jamaica Plains, Mass., in 1848, and varied in no respect from the Langstroth frame and hive. This on the affidavit of Solon Robinson. The same style of frame was used about the same time at Danvers, Mass., as per the affidavit of Mr. Putnam, of Galesburg, Ill. These affidavits are on record in the office of the Hon. A. F. Perry, corner of Main and Third streets, Cincinnati, Ohio.

Harbison, Townley, Flander, Metcalf and some others claim to have known of movable frame hives between 1845 and 1850. A few books were written on bees about this time, but possessed little merit either in theory or practice.

About 1852 the Rev. L. L. Langstroth patented the hive which still bears his name and which many prominent bee-keepers still use with but slight modifications. This gentleman took hold of the matter in earnest. He sold large portions of the

territory covered by his patent to influential and wealthy men who, in connection with himself, introduced the hive far and wide and thus demonstrated that a patent is not necessarily an evil, as many seem to suppose, for it proved in his hands a powerful means of advancing the true science of bee-culture. This he soon followed up with his book "The Hive and the Honey Bee," which is perhaps the most complete and scholarly production of its kind ever written in any age or country, and shows its author to have been perfectly familiar with the best literature on this subject in the Old World, and a perfect master of both the science and practice of bee-keeping. To Mr. Langstroth—although not the first—more than to any other man, are we indebted for the introduction of new races of bees to mix with our own, and thus prevent the evil of in-and-in breeding.

The "Mysteries of Bee-keeping Explained" appeared simultaneously with Mr. L's book. The author, the late lamented M. Quinby, showed in this work a familiarity with the economy of the bee truly astonishing to one writing at that time. It was eminently practical, and did much valuable work for the advancement of rational bee-culture. He also invented the best form of a bellows smoker then in use and this has been further improved by the addition of the direct draft principle invented by Mr. T. F. Bingham, which leaves nothing more to be desired in this line.

Mr. Quinby wrote largely for the Agricultural press of the country. He freely gave all his ideas and inventions to the public for the promotion of the cause he loved, and labored faithfully to raise bee-keeping to the dignity of a distinct profession. The quiet, noble self-sacrificing spirit manifested by this truly great man, will be talked of and cherished and felt so long as the keeping of bees shall engage the attention of men. The writings of Mrs. Tupper, the Harbisons, Metcalf, N. H. & H. A. King, Prof. Cook, and others, have done a vast work in bringing about the present advanced stage of bee-keeping in this country. While A. I. Root, T. G. Newman and your humble servant, realizing that "constant dropping wears out a stone," are constantly pelting away at the superstitions and prejudices of the people, and hope, ere long, to end the battle in complete triumph. The most convincing arguments, however, are those which appeal to the *palate*, and *pocket*, and these are being effectually used by Harbison, Hetherington, Doolittle, Betsinger, Clark, C. J. Quinby, and many others, in the shape of tons of honey as beautiful and pure as the nectar which Jupiter sips. And this is being distributed all over the world by Thurber, Quinby, E. & O. Ward, Thorn & Co., of this city, Muth, of Cinn., Vincent, of N. O., and by the large dealers in other cities. We learn from statistics that there are now in the United States about 1,000 different bee hives covered by patent, and a still larger number unpatented. Nearly all the inventions of European origin have been greatly improved by our Yankee ingenuity, and men everywhere are waking up to the importance of this industry as never before. The aggregate yield of honey is largely on



the increase, besides the quality and quantity, and the methods used in America are far superior to any other country, and these facts, taken together, are creating a fear in the minds of some of our most thoughtful apiarists that the prices received for honey may fall below the cost of production, so we will present a few facts which we think may tend to allay these apprehensions. Great Britain consumes annually about 9,000,000 lbs. of sugar for brewing purposes. Other foreign countries, as well as our own country, a proportionally large amount. It is a fact that extracted honey contains a much larger percentage of the elements which is a substitute for malt than sugar does, and is cheaper at 90 cents a gallon, than sugar is at the lowest prices it has yet reached. A desirable change by substitution is now going on and may be greatly hastened by well directed efforts on the part of honey dealers. Second. Not more than 2-5ths of our people have yet learned to eat honey, not because it is not generally acceptable, but it has never been brought to their notice as a staple article which may be had at the same price as the best quality of syrup, and that it is far more healthful.

Third. A large percentage of the syrups in general use in our families are badly adulterated, and positively unfit for the human stomach, and particularly the stomachs of children. This fact is fast being recognized by the most intelligent of our population, and only needs a little judicious pressing through the papers to displace it, and in its room put extracted honey.

Fourth. Laws against the adulteration of honey, affixing such penalties of fine and imprisonment as shall afford complete protection to the producer, the honey dealer and the consumer. Steps should be at once taken to effect this desirable result, before some other unprincipled honey dealer shall cause Great Britain to give us the second slap in the face through their leading papers, by branding us as a set of swindlers, and warning the English people against the use of American honey.

A petition setting forth this matter in its true light should be presented to Congress at its next session. All the members of this National Convention, including all dealers in honey, should be asked to sign this petition, and a refusal from any cause whatever, should be regarded as favorable to honey adulteration, and producers should be warned against selling such persons their honey. Such a petition, praying for so laudable an object, and backed by so many honorable names, could hardly fail in obtaining the desired law, when extracted honey would at once advance to its true position in all our markets. Bee-keepers everywhere should be united in bringing about these needed reforms, and imitating the politicians, should "keep it before the people" till the end is attained. The journals devoted to bee-keeping should be bold and out-spoken on this subject, regardless of all present emoluments for a contrary course, and for one, I here and now pledge the *Bee-keeper's Magazine* to this policy without the least equivocation or mental reservation, and I expect to see friend Newman, of the *AMERICAN BEE JOURNAL*, to join hands,

and then, by a rising vote, test the sense of this Association, and thus make a significant stride in the true progress of bee-keeping in this country. A. J. KING.

A vote of thanks was presented to Mr. King for his able address.

An election was then held for officers for the ensuing year. T. G. Newman having been placed in nomination, and the Convention expressing their approval so enthusiastically, it was moved that Mr. A. J. King be instructed to cast the vote of the Convention, by ballot, for him, which was accordingly done, electing him President.

The following were elected Vice Presidents:

J. R. Lee, Huntsville, Ala.
Dr. W. Hipolite, Duvall's Bluff, Ark.
C. J. Fox, San Diego, Cal.
J. L. Peabody, Denver, Col.
F. L. Sage, Wethersfield, Conn.
Jesse B. Watson, Vermillion, Dakota.
Dr. J. W. Keyes, Iola, Fla.
Dr. J. P. H. Brown, Augusta, Ga.
E. J. Oatman, Dundee, Ill.
Rev. M. Mahin, Logansport, Ind.
O. Clute, Iowa City, Iowa.
N. Cameron, Lawrence, Kan.
W. M. Argo, Lowell, Ky.
W. H. Ware, Bayou Goula, La.
Prof. C. H. Fernald, Orono, Me.
D. A. Pike, Smithsburg, Md.
Henry Alley, Wenham, Mass.
Prof. A. J. Cook, Lansing, Mich.
C. F. Greening, Grand Meadow, Minn.
Rev. J. W. McNeill, Crystal Spring, Miss.
Dr. J. W. Greene, Chillicothe, Mo.
George M. Hawley, Lincoln, Neb.
R. C. Taylor, Wilmington, N. C.
J. L. Hubbard, Walpole, N. H.
Rev. J. W. Shearer, Liberty Corners, N. J.
P. H. Elwood, Starkville, N. Y.
B. O. Everett, Toledo, Ohio.
Rev. W. F. Clark, Guelph, Ontario.
W. J. Davis, Youngsville, Pa.
S. C. Dodge, Chattanooga, Tenn.
Judge W. H. Andrews, McKinney, Texas.
John Chatterley, Cedar City, Utah.
J. W. Porter, Charlottesville, Va.
E. W. Hale, Wirt, W. Va.
A. E. Manum, Bristol, Vt.
Christopher Grimm, Jefferson, Wis.
Thomas Valliquet, St. Hilaire, Quebec, Canada.

Some not being members, it was moved they be made honorary members, without the payment of initiation fee, and that they be requested to advance the interests of the Association by correspondence, reporting the condition of bee-keeping in their respective States, &c., and if they cannot act, to name such as can fill these duties.

The following were unanimously elected:

Recording Secretary—Dr. Parmly.
Corresponding Secretary—Prof. Hasbrouck.
Treasurer—J. H. Neelis.

WEDNESDAY MORNING.

After calling the Convention to order, the President delivered the following address:

To meet you on this auspicious occasion is indeed agreeable. To unite with you in the discussion of themes that are all-absorbing to every apiarist, will be to me a pleasure—the more so, because this Association is not only National in name, but also in its influence and might; many of its members being among the foremost in scientific explorations in the apiary, and even their names are "household words" around many a distant hearthstone. And when, by means of that mighty lever—the Printing Press—is transmitted to a world your "thoughts that breathe and words that burn"—they echo and re-echo to "earth's remotest bound."

It is exceedingly agreeable to witness the

harmony that has prevailed so far, and now, as the time will be mainly given up to discussions of themes of vast importance—themes upon which we have not arrived at a union of sentiment, let the arguments be strong and well matured, but let no *harsh word* mar the beauty or strength of even one argument or speech. Let us all remember that we speak not only to the hundreds that are present, but also to the thousands that are absent, who in almost breathless silence anxiously await the published report of our proceedings. A stenographic reporter is present who will take down every word we utter—"Let us, therefore, take heed to our lips, that we offend not with our tongue."

What we need is co-operation! Concert of action! Oh! how the weary and burdened soldier on the battle-field, likes to feel that he is not alone—that his elbows touch those of his comrade! How refreshing it is to him to know that a brother is fighting by his side for the same soul-inspiring cause, in defense of the same hallowed principles! How it adds to his assurance, strengthens his nerves, and cheers his spirits!

As a band of brothers we should stand side by side with our fellows, and cheer by our presence, our counsel, and our inspiration, while fighting for the same result.

By a bold and united dash, we may storm the citadel of public opinion—and having "the best honey in the most marketable shape," inscribed upon our banners, we may scale the walls of a "weak market," placing upon the topmost round of public demand an unceasing call for "Delicious and Pure Honey"—while the people from the rising even unto the setting of the sun, may cry, "MORE! MORE! GIVE US MORE!"

It was moved that the President be requested to correspond with the bee-keepers of the country, to induce them to take more interest in Conventions, and to use every means within their power to create a home demand for honey; and as honey shows, once a year, in every State or District, would greatly assist in placing honey in its time-honored position as man's natural sweet, it is earnestly desired that such may be instituted, and our President is requested to give the Vice Presidents all the assistance he can to make such honey shows a success.

Mr. Newman thought that all correspondence should be conducted by the Corresponding Secretary.

Mr. Hasbrouck thought that the President would have more influence with the bee-keepers of the country.

L. C. Root was of the same opinion.

Mr. Newman said he had the interests of the apiary deeply at heart, and would not shrink from any duty assigned him. Carried.

READING OF CORRESPONDENCE.

A letter from the Rev. L. L. Langstroth, regretting his inability to be present. He would have met with a very hearty welcome.

Letters were also read from Mrs. Dunham, A. H. Hart, Wm. M. Kellogg, D. D. Palmer, R. M. Argo, J. M. Shuck, John H. Keippart, J. Whitman, Jr., and Gen. W. G. LeDuc, Commissioner of Agriculture, giving much valuable statistical information.

The following letter from Louisiana was then read:

Brother Bee-Keepers of the National Association:

As the Southern States will probably have little or no representation at your annual meeting, I beg to address you a few words in their behalf. The great distance, consequent heavy traveling expense, scant purses, and busy work of securing our fall honey crop, which comes to us in bountiful quantity just at this time, almost precludes the possibility of our bee-keepers taking an active part in your labors for the general good, but we feel a pride and a deep interest in your work, and hope that at some future day we will have the pleasure of assisting in your discussions of bee-keeping and honey marketing mysteries. We could not offer you any valuable advice or soothing consolation on the subject of wintering, nor could we reasonably hope to win the prize medal for section honey against your Doolittle, Betsinger, Hetherington, Martin and others, but coming to acres of nice yellow bees and tons of liquid nectar, we would ask your kind consideration. That all sections of our country may take a deeper interest in your efforts and proceedings and feel that it is really a national society, I would suggest that your membership might be largely increased, your treasury receipts brought up to a working basis, and your powers and influence for the general good greatly augmented, by appointing the meeting for a different place each year—say next year in Chicago, Cincinnati or St. Louis, the year following in New Orleans or Atlanta, the next in Baltimore, and so on. If such a plan should be adopted I feel sure our people in the South would lend a helping hand.

We have as yet very few well organized and efficient bee-keepers' societies in the South, but they are increasing gradually. The introduction of the Italian bee, the wonderful improvements in hives and apiarian implements, and the immense success of all who have engaged in the business, has attracted the attention of the whole country, and many are now buying bees and locating large apiaries as specialists. Many experienced apiarists are coming to us from the North and West, and with honey-yielding flowers in endless variety and profusion, blooming almost the year round; no expense of cellars, double hives and chaff packing, and no losses of bees from "wintering" and foul brood, who will say that we may not soon astonish the world with our honey productions?

Yet, with all these advantages, we have some drawbacks that cannot be speedily overcome without organized co-operation. The principal of these is the lack of a home market. Cane sugars and syrups are produced in such abundance, and at such cheap prices, and the people so much accustomed to their use, that there is no demand for honey in our villages, and very little in the large cities. Hence, we are compelled to ship our entire productions to the Northern or Western markets, or to Europe. For this we have cheap transportation by the Mississippi river and the cotton-ships at New Orleans. We have made no shipment direct to Europe yet, but it is probable that



we will look in that direction in the future, as we meet no encouragement in the markets North or West. The cause of this we believe is mainly attributable to the inability of the leading honey dealers, or at least a majority of them, to distinguish between pure natural honey and the adulterated article. As proof of this, I have in the past three years sent several samples of choice machine extracted, pure white clover honey, taken from the hive by myself, to reliable parties in some of the Northern and Western markets to know what prices could be obtained, and the answer in nearly every instance was, that honey dealers and experts pronounced it a manufactured or adulterated article, entirely unfit for table use, almost impossible to sell and only worth the price of glucose for manufacturing purposes. This has been the experience of nearly all our bee-keepers and shippers of honey, and we cannot possibly account for it in any other way than that above stated. It may be possible that our flowers give us a very inferior honey compared to that usually sold in those markets, we might be reconciled to such an idea (possibly), but we cannot have much faith in the judgment of men who say it is adulterated.

In order that you may judge the matter for yourselves, I send, in the care of Mr. Thomas G. Newman, a sample of the same quality of honey referred to above, for the inspection of the Convention. No doubt you will find a marked difference between this and the white clover honey of the North and West, and if I may be allowed, I would suggest that for the benefit of bee-keepers and honey dealers generally, the Convention would call especial notice to this dissimilarity, which is attributable, as I suppose, to a difference in soil and climate. Honey from white clover blossoms in the South is not so light in color—more of a straw or light amber, more transparent, heavier in body, more delicate and smooth in flavor—than the white clover honey of the Northern and Western States, and a still more singular difference is, that while the latter will become solid and opaque by crystallization in a moderately cool temperature, the former retains a perfectly liquid and transparent state, even when subjected to cold several degrees below the freezing point. I have samples of this honey that I have kept exposed to light and the changes of climate several years, still it retains its original form. Mr. Chas. F. Muth, of Cincinnati, the leading honey dealer in the West, furnishes me with an instance where several barrels of this honey was left in the open air, on the sidewalk by his store, for many days and nights when the weather was extremely cold, the mercury reaching several degrees below zero, but on examination the honey was found to be still liquid.

Prof. Cook, in his late excellent work ("Manual of the Apiary") says: "Some honey, as that from the South, and some from California, seems to remain liquid indefinitely." As far as my experience extends, this is only true of honey taken from white clover blossoms, all other kinds crystallizing perfectly solid on the approach of freezing weather. Prof. Cook also says: "Some kinds of our own honey crystallize

much more readily than others. But that granulation is a test that honey is pure is untrue."

In conclusion, gentlemen, permit me to express the hope that the Society may experience a pleasant and profitable meeting, and that you will endorse and actively assist the efforts now being made by some of our most intelligent bee-keepers, to get Congress to pass a law prohibiting the adulteration of honey and other sweets.

Very respectfully yours,

WILLIAM H. WARE.

Bayou Goula P. O., Iberville Parish, La.,
October 1st, 1878.

NOTE.—The accompanying honey was perfectly capped to bottom of frame before being extracted, which makes it several shades darker than if taken before capped, as is usually done for exhibition purposes. It is not a selected sample, but was drawn from a tank of 160 gallons, so that it may faithfully represent an average of what we usually put up for market. W. H. W.

The samples of honey did not arrive, and it was subsequently learned that they were sent by mail and broken *en route*.

President Newman regretted this lack of regard for the rules of the post office. Carelessness in mailing queens had brought upon us the present stringent rules which were against the interests of bee-keepers.

Fertilization in Confinement.

If I could have my choice, I would postpone the discussion of this subject for another year at least, for the fact is, that owing, as I prefer to think, largely to the past unfavorable season in this locality, and to the unavoidable delays in experiments of this kind, I have not yet been able to put to the test some plans I have for so modifying my methods as to make them generally useful. My efforts have been directed mainly towards devising means for re-queening an apiary cheaply, and with stock whose character we could control. And what I have accomplished is adapted only, and perhaps not well, to this purpose. I have received so many inquiries on the subject, which I have put off with a promise to unbosom myself fully at this time, that I am constrained to tell what I have found out thus far, although I realize that the matter is still incomplete and might, perhaps, rather not be told.

In the first place, I have found out the main fact, that queens can be fertilized in confinement, and have satisfied myself that those who have stated for a number of years past that this was possible, did not probably observe incorrectly, and were stating the simple truth, although they have received a good deal of ridicule, and have even quite frequently been called hard names. It is a strange fact, that bee-men generally consider the thing so preposterous that they will not try to see whether it can be done or not, or if they try, do so in such a careless, indifferent way, that nothing comes of the experiment but the conclusion that they were fools for trying it. Men seem to think that there are some *a priori* reasons why the thing cannot be done, and finally, the distinguished author of the "New Manual of the Apiary"

has attempted to formulate the reasons, thus: 1st. Because the mating must take place on the wing, as it is probably necessary that the air-sacs of the drones should be distended; and, 2d. Because the drones are cowards.

To the first it is only necessary to say, that nobody, as far as I know, has proposed to confine the sexes closely, that they could not fly; and to the 2d I answer, that I could never see much signs of cowardice in drones, except when the workers are chasing them with murderous intent, and then, having no weapons of defense, what could they do but run. At ordinary times, they seem to me to be a fearless, self-assured race, not hesitating even to venture into a strange hive, and investigating everything—even the lords of creation, without an appearance of timidity. There was once a man who went to Boston, and, as he leaned against a lamp-post, he expressed his views of the place thus: "I never before saw another such place as this. Everything appears to be reeling around and trying to stand on its head." Now, we know that these antics of the hub of the universe were "all in his eye," and so this question of the courage of drones may depend altogether upon the eyes of those who watch them. To me, at least, they appear to know no fear. If they are shut up, they quite naturally want to get out, but they don't seem to be much scared about it, and are not so intent on regaining their liberty as not to avail themselves of the great opportunity for which alone they live, and which they seem to be constantly seeking, if it is thrown into their way so that they cannot help but notice it. Now, beside these two reasons, which appear to me to amount to nothing, can any one think of another that would seem to make it more unlikely, that two bees would mate when put alone into a box, than that a pair of rabbits would under similar circumstances. There are several conditions to be observed, some of which are absolutely necessary to success, and others which hasten it.

1st. The queen must have been immediately before in contact with the bees of a hive, not necessarily loose on a comb, and must have left them of her own choice to seek a mate. She must be left entirely to follow her own inclinations and instinct, and I suppose the principal reason why parties who have tried to mate bees have failed, is, that they have opened a hive, picked out the queen, and tried to force her to serve their convenience.

2d. She must meet the drone in a small place—the nearer to a 3 in. cubical box the better, with glass on top only—standing in the bright sunlight. It is not impossible for them to mate in a green house, but if a queen and several drones should be released in such a place, they would be likely to strike the glass at considerable distances from each other, and each would stay near the place first struck, trying to get out, and so it would be quite improbable that they would come anywhere within notice of each other. The more contracted the place, yet leaving them room to fly a little, the more certainly and splendidly will they meet. I have used boxes with glass sides with success, but you are more apt to fail than if

there is glass only on the top. They scarcely touch the top glass even with their heads, but fly just below it, in the seeming attitude of inspection of their surroundings, and do not become so excited and intent on getting out as when they fly against a vertical glass.

3d. She must not be exposed to the least daubing of honey. Daubing hinders her flight, and takes much of her attention in efforts to clean herself, and thus her time will be gone before she has attended to the business upon which she started.

4th. Preferably, but one drone and no bees must be put with her into the fertilizing box. The presence of more seems to irritate her, and she tries to get away from them.

I have found out, moreover, that there is not just one particular way in which queens may be fertilized in confinement, and no other. If the above conditions are observed the question is, how not to secure their fertilization if you shut them up in the same box, and give them a little time. I have seen various methods described, most of which I am sure would answer; but the objection to which generally is, that they are more troublesome than necessary. About a year after I had devised the method I employ, I read of a plan similar to it, in all essentials, published, in 1871, in *The Bee-Keepers' Journal and National Agriculturnist*, but my way is rather more simple in details. I would remark here, that I think any plan in which the queen and drones are to be detained in a box, attached to the hive, through a 5-32 inch passage, is not to be trusted; for I have proved to my satisfaction, that a virgin queen will pass through as narrow an opening as a worker can.

The method I use is as follows: I have my queens hatched in queen nursery cages, not put down into the hive as they usually are, but set into a rack on top of the frames. The cages have coarse wire cloth bottoms, and glass tops. I can set about 36 on the 8 frames of a hive. As I use side surplus boxes, this does not interfere with honey gathering. Into these I put the cells as near matured as I can get them with safety. I supply them, on a small wire cloth shelf with a little honey in the comb, nicely cleaned by bees. I cover all with a woolen blanket and watch them quite closely through the glass covers to see when the queens hatch. When a queen is 4 days old, about 1 p.m., on a fine day, I take a fertilizing box with a glass top large enough to cover one-sixth of the cages on the hive, and 3 inches deep, and opening a slide in the bottom. I place it before the entrance of a hive containing my fine drones. I slide the glass top a little to let the workers out, and wait till I have caught a drone that suits me. I now shut the top, remove the box, and place it over the cages on the queen-rearing hive, taking off the blanket and removing the glass cover from the cage whose queen I wish to fertilize, so she can walk up into the fertilizing box when she chooses. I can set 6 such boxes over the cages, each charged with a drone. I now take my hoe and go to hoeing corn somewhere near, occasionally going to look how things go on. If I find a drone dead in any of the boxes and the queen



bearing evidences of the success of the operation, I remove her, put in another drone, and open another cage. If a queen does not come up in a half hour or so, I conclude she is not anxious, and shut her up to try another time. If I have good luck I can get through with a dozen in an afternoon, and with all in three days. But I have never done quite so well as that. Ordinarily, it takes 5 or 6 days to get the most of a batch fertilized, and there will be some that seem to get started wrong, and they have to be put back several times, and finally starve to death before they are fertilized, or get too old to care about it longer, and have to be thrown away at last. Two or three times, when I have felt real lazy and had not much to do, I have sat down and watched the process, but one requires a good deal of patience to do it. It is as bad as fishing. First, the queen sits down on the side of the box and rubs herself indefinitely. She has a little honey on her likely. Finally, she begins to get clean and she takes a fly up toward the glass. Just then the drone is exploring the bottom of the box, or has gone down into the cage and stays provokingly. By and by the queen gets tired of flying, and settles on the bottom and rubs herself again. Now the drone comes up, he crawls around the bottom of the box, not deigning to notice the queen. Then he stands still, and she begins to tramp in a very excited manner; but she seems to ignore the presence of the drone, and he hers. But stop! there, she has found him. She caresses him, walks over him back and forth, pushes him around and pushes herself under him, and you are all awake, thinking the critical moment has come; but there the unfeeling brute stands, perfectly stupid and impassive, and you feel like taking him out and pinching his head. By-and-by, he gets up and flies to the glass for a little exercise, for variety. Now the queen is at the bottom, still further smoothing her exterior. You are disgusted, and conclude you will go and take a drink—of water, of course. After a while you walk leisurely back and there, as sure as fate, lies the drone on the bottom dead, and the queen is running about wriggling and rubbing herself with the well-known appendage attached, and the affair is over. You probably call yourself a fool, and resolve that the next time "you'll be in at the death."

You fix things again and watch, with a repetition of former experiences, till, all at once, you notice in one of the boxes a queen and a drone flying at the same time, now, again, you are all eagerness; but the drone persists in flying toward one corner, till he is tired and settles. The queen continues flying a while longer and she settles, just as the drone is ready to rise again. So the thing goes on till you begin to think that it was all a matter of chance before, and you don't believe it would happen again in a month, when all at once they are both up near the glass again. They turn toward each other an instant—there is a great commotion. They go dashing against the top and the sides and the bottom of the box, around and around—you can't see them—you can only hear—till suddenly the drone lies dead, and the queen is running

uneasily around, and the thing is accomplished. It all took place before your eyes, but you saw nothing. You cannot tell who began it, nor anything of the position, nor how the queen tore herself loose. I've seen the operation twice in a box, and once on a window, but can answer none of these questions.

You will undoubtedly ask me if I consider the plan perfectly practicable and satisfactory. Well, sometimes I do, and sometimes I don't. Last fall I had such excellent success with it, that I thought it left nothing to be desired; but during this execrable season I have had so much trouble and annoyance and loss with it, that at one time I had concluded to abandon it entirely, and go back to nuclei for raising queens, and to try and perfect some method of fertilization, if possible, in connection with them. But after suffering more trouble and annoyance and loss with the nuclei, I concluded to try my cages once more, and lately have had good success with them with Cyprian queens.

You ask, What is the trouble? It begins here. You have a lot of cells 9 days old. You wish to let them get as old as possible before putting them into the cages, and you conclude you will risk them a couple of days yet, keeping a strict watch over them in the meantime. Have you not noticed that such a state of things was sure to bring on a cold rain storm this summer, a week long, so that you could not get into a hive even with an umbrella? And, of course, when the rain clears off one queen has hatched and all the other cells have a neat little hole in the side, and your great expectations have vanished. You start a lot more from larva all hatched the same day, so the queens will come out all about the same time, and you double and quadruple the number, and start them in succession so that if you lose most, some, at least, will come out between storms—it can't rain all the time, even this summer—and at last you have a supply of cells for your cages. Now the young queens are all hatched and just old enough for you to begin to get them fertilized. This is another condition of affairs which this year has brought rain as certainly as 4th of July used to do, when we were boys. It rains and rains for 3 or 4 days, then it stops, and is overcast for a couple of days more, then another storm commences, and before you get sun-light to bring your queens out, they are all starved in the cages, or the few remnants are too old to operate upon successfully. This thing has happened with me over and over again the past season.

Then, again, the queens are difficult to be introduced. Within half an hour after they are fertilized they may be taken out and suffered to run into the entrance of any queenless hive with perfect safety; but if you cage them again, and keep them beyond this time, it is almost impossible to introduce them in any way that I know of. They seem to be worse than virgins. I have introduced virgin queens from the Jewell Davis nursery cages, by the Mitchell plan, to nuclei, without a loss of more than 3 out of 12; but by the same plan of introducing, I have, every time this summer that I have tried, lost more than half, and out of one

batch every one. I would not suspect this difficulty, but it is a fact. Consequently, it will not pay to raise dollar queens by this process, as far as I understand it at present. If you must introduce the queens, at a great risk of loss, to nuclei to get them laying before they are salable, better raise them in the nucleus from the first. If it had not been for this unfortunate difficulty, I say, frankly, I should not have told what I have about it, and I should have made a sensation in cheap queens.

As much as I know about queens fertilized in confinement, I have told. I, of course, expect that there will still be those who will say it can't be done, and never has been, but if I shall have succeeded in stimulating any to work with me in this field, until we can solve to the satisfaction of ourselves and others this most neglected and most important of all problems to the bee-fancier—now doubly important since the arrival of the Cyprians—I shall feel repaid for my efforts, and the opprobrious epithets which have silenced others, and which I suppose I have reason to expect from some of our not very enterprising contemporaries, will not hurt my feelings.

J. HASBROUCK.

Flat Brook, N. J.

Mr. Oatman asked what Mr. Hasbrouck expected to gain from this, and he replied that it enabled him to keep different races in the same apiary distinct, or cross-breed, as he may desire, and he had hoped thereby to cheapen the rearing of queens. He is satisfied that by other means practiced one cannot afford to rear queens for a dollar. The great difficulty in introducing queens so fertilized, except within half an hour after the act, is a drawback to its general use.

Mr. Nellis had nothing to state except the failure of his experiments.

Mr. Oatman. This is a serious and important question, if cross-breeding can increase the production of our bees. He moved a vote of thanks to Prof. Hasbrouck for his able address, with the request that he continue the investigation of the subject.

L. C. Root. This is a matter of more importance than generally considered. We aim to rear our queens from our best colonies, and therefore we should be most particular in selecting the mother as well as the drone. We have no control of this in the natural way. I have experimented largely, but never met with success, and am looking anxiously to have this a success, as it is of great importance.

Mr. Alley will try the method as soon as he reaches home.

Mr. Newman thinks it important, and next to the production and marketing of honey.

Mr. Root has noticed some colonies having very superior drones, and has earnestly wished that his queens might be fertilized by such drones.

Mr. Hasbrouck does not know that he is giving too much importance to the subject, but is surprised that more have not succeeded.

Mr. Oatman. Will a queen hatched in a hive have any disadvantage over a queen hatched in a cage?

Mr. Hasbrouck. None; I only hatch in a cage for convenience to save time in looking for them.

Mr. Root further stated his experience while with the late Mr. Quinby. Gave Mrs. Tupper \$10.00 for her method and failed. First he made a box, then a house eight feet square. Placed a nucleus in the house containing only young worker bees. Once saw the drones appearing to notice the queen. I should expect if I caught a virgin queen leaving the hive that would be the most opportune moment for the experiment and I hope our members will experiment.

Bee Pasturage.

There are many important questions related to the topic with which your committee honored me, in making their assignments for essays to be read at this annual gathering. The fact that all our honey is gathered in a few brief weeks of a long season, is a suggestive one. The fact that the quality of honey, both as to appearance and flavor, is as varied as the plants from which it is gathered, must interest the practical bee-keeper. That many honey-plants are very susceptible to external circumstances, ever varying in the amount of their secretions with climatic and other conditions, as also that there is great variation among different plants, in the degree of this sensitiveness, are questions of great interest to the thinking apiarist. The fact that bees are also wonderfully susceptible to exterior circumstances, and only do their best at times of general prosperity, is also of interest in this connection.

Much of interest and value connected with these questions, is now the common property of all intelligent patrons of our art. Much more is yet hidden from our view, waiting to be drawn forth from its seclusion by the keen instruments of the scientist, or to be discovered to the world by the sharp vision of the observing bee-keeper.

I deeply regret that I am not able to throw more light upon this important subject; yet I shall not be wholly dissatisfied if I can even let fall a single faint gleam, either by way of actual information, or of suggestion that perchance may lead to wider knowledge.

LONGER AND MORE CONTINUOUS HONEY SEASON.

It is well known to all present, that even in the most favored localities, the aggregate time of active storing, during the best seasons, is hardly twelve weeks—one in May, fruit blossoms; four in June, white clover and raspberries; two in July, basswood; and five in August and September, golden rod, boneset, etc. For most seasons and localities, the above is twice too great. Now this time—were there but flowers to attract the bees from the time of the early willow and maple till the autumn frosts—might be more than doubled. The question, then, of replacing these periods of dearth and idleness—I might say of robbing and irritableness—with those of bloom and industry, becomes one of no small moment. You all know, by the fruitful observation of the past, that could you replace idleness with activity, it would be more than a net gain, as it is no injury to the bees; in fact, our bees never come through the season in such good condition as when the time of secretion is longest and most continuous. Can we



then, by any means, secure a continuous pasturage for our bees? This would seem the most difficult in April and May. Yet, who has failed to notice the gay, coquettish dandelions, and their success in winning bee-suitors, even at this dawn of the season? Might we not, then, secure a golden, if not a "gold basis," by planting an acre of these sprightly gems of the early year? From the attention which the bees pay these flowers, as also from the family to which they belong—*Compositæ*—we should be led to rank them high as honey plants, till actual experience proves the reverse. It was suggested in a recent number of one of our bee-journals that the roots of these plants might be utilized, as, when properly prepared, they furnished a not unpalatable substitute for coffee, though I must confess to a personal prejudice in favor of No. 1 Java.

The time of dearth between white clover and basswood can be canceled by constantly cutting back the white clover. Our College lawns were mown, the past season, once in every three days. This kept the white clover in bloom, and made the harvest from this source lap on to that of basswood. Or we may secure bloom from any of the following plants: Rape, mustard, mignonette or motherwort. Rape and white mustard, on light soil, with good cultivation, will bloom in about four weeks from sowing; black mustard, about eight weeks. Mignonette, if sown early, will be in bloom before the white clover is gone, and continue through the season. Motherwort, in this latitude, will fairly hum with bees from June 25th to July 20th. Which of the above plants can be grown with the greatest profit? is a question which experience alone will answer.

To bridge the chasm between basswood and fall bloom, or to supply the absence of native fall flowers, we have rape and mustards—which can be made to bloom at will after the middle of June; mignonette, motherwort—whose bloom I think could be deferred by cutting in May; catnip, which commences to bloom early in July, and is covered with bees for about two months; cleome, which blooms from July to September, and in favorable weather is alive with bees; and borage. From reports in the bee journals, I presume I might add figwort to the above list. Surely the above is, by no means, a discouraging array. I wish I could state the acreage of each of the above, which would suffice to keep fifty or one hundred colonies busy, as the season's average; but I know of no accurate data from which to form an opinion. My friend, Mr. Fisk Bangs, from an experiment with three acres of black mustard the past season, feels sure that this amount will keep eighty colonies fully active. May I not suggest that each of you who has or can command a few acres of land, make one definite experiment each year, and report the results at these annual gatherings. Who can tell what practical results might flow from such a course? From our experiments here, I am assured that we may augment our profits by securing a continuous pasturage as suggested above. Which plants are most desirable for honey, and for added profits in market value of seed, I am not able to state.

QUALITY OF HONEY.

Every person here has admired the immaculate honey secured from the white clover and basswood. Most of you have tested its excellence with even more pleasure. All have observed the less inviting appearance of buckwheat honey; most have regarded the flavor of this with less favor. Many of us have noted the rich brown color of honey gathered from the bonesets and golden rods, and have spoken its praise as we tested its incomparable excellence. We know from its European reputation, that rape honey is beautiful and of exquisite flavor. Mr. Fisk Bangs, the past season, has proved the same to be true of that from mustard. The color is a rich golden yellow, the taste delicious. The honey from mignonette, cleome, teasel and the mints, has been commended for its fine quality and beautiful appearance. Yet, notwithstanding all this, we still have much to learn of the real character, physical and chemical, of the various kinds of nectar. Nor will any one question the practical character of this knowledge, who has carried his light and dark honey to market, exhibiting the same to the buyer, side by side.

Prof. R. F. Kedzie, of the chemical department of this College, is now making analyses of all the kinds of honey that he can obtain, that are purely from the flowers of a single species of plants. May I not ask each of you, whenever you have any honey that you *know* to be from the flowers of a certain plant, that you note the color, the flavor, and ask others to test the same with you, that error from the personal equation—so to speak—may be removed, and then send a generous sample to Prof. Kedzie for analysis. The honey may be sent by mail, safely and cheaply, if prepared as follows: Bore an inch hole into the edge of a thoroughly seasoned two-inch plank, to a depth of four inches. Then trim off with a saw till the piece is about two inches square and five inches long. Now fill with honey, tightly plug, and write on the wood, "Prof. R. F. Kedzie, Lansing, Mich.," adding five or six cents postage, as the postmaster shall direct, when it is ready to mail. At the same time send a postal which shall inform Prof. Kedzie who you are, your address, the kind of honey, also whether the flowers grew on sand or clay, on high land or low, whether the season was wet or dry when the honey was gathered, and whether the yield was abundant or light. Are not some of you ready to do this at once? Such a course, generally adopted, will give us very valuable knowledge in a direction new, yet very practical.

HONEY PLANTS CAPRICIOUS.

That plants have moods, no observing apiarist can doubt. Let the weather be very wet, and secretion of nectar stops. It is the same if the weather is very dry. We have all observed that, some seasons, the nectar of white clover, basswood and buckwheat would fairly flood the hives. Yet, the next season, though the flowers were no less abundant, the nectar was almost wanting.

Flowers, also, like people, seem to vary in their power to fortify against adversity. We have noticed that the mustards, borage,

catnip, and especially motherwort, seem ever ready to yield their precious sweets, while most plants are alike susceptible to moisture or drouth, and at times of these extremes, utterly refuse to yield their usual gifts of the coveted nectar. Some plants, too, like borage, seem not to be favorites, and only attract the bees, in numbers, when other plants refuse to secrete. The past season we have tried a number of plants from Bohemia, and other parts of Austria and Southeastern Europe, some of which came recommended very highly as honey plants. But, to our surprise, none have proved successful. Can it be possible that plants become home-sick, or rather, that in being acclimated their constitutions become so disturbed that they are unable to distill the precious sweets. At least I do not think a single season's results a crucial test, and shall certainly give them a second trial.

How desirable that careful experiment shall discover to us the law which governs nectar secretion, as also the flowers or plants which are most indifferent to varied conditions of atmosphere, and thus most desirable for bee forage.

**THE INDUSTRY AND THRIFT OF THE BEES
COMMENSURABLE WITH PERSISTENCY OF
HONEY SECRETION OR BEE FORAGE.**

I have been led by my experience for the past three years, to attach no little importance to this last division of our subject. I have noticed that even our small beds, occupying but a few square rods, served the purpose of stimulative feeding, thus keeping the bees breeding during the usual interims, not only of storing, but of rapid brood-rearing as well. This continuous breeding keeps the hives crowded with bees, and ready to take the fullest advantage of the brief harvest, when the honey seems to come in floods. Our experiments here, for three successive seasons, some years since, as given in the *AMERICAN BEE JOURNAL*, showed conclusively that stimulative feeding, during the periods of summer when the bees were inactive, was very remunerative and desirable. I now believe that the cheapest and best method to practice this, is to plant a few square rods with well selected honey-plants. Each bee-keeper, by studying his locality, may soon learn the periods when no nectar is to be expected, and so arrange that a plat of rape, mustard, catnip, motherwort, mignonette or cleome, shall open their showy petals, and offer their tempting nectar. In this way even small beds of our most choice honey plants will not only add to the beauty and interest of the apiary grounds, but will also swell the profits of the apiary. This is a cheap and agreeable way to practice stimulative feeding.

Regretting that I cannot join in your social greetings, and profit by the able discussions and valuable exchange of opinions, which I am sure will characterize your gathering, I sincerely hope and trust that the harmony and entire freedom from aspersions which shall attend your proceedings, and the great value of your deliberations, will convince even the most skeptical, that association among apiarists, as among all other classes, means progress.

A. J. COOK.
Agricultural College, Lansing, Mich.

A vote of thanks was unanimously passed to Prof. Cook for his very able paper on Bee Pasturage.

Rational System of Wintering Bees.

Fellow Bee-Keepers of the National Convention :

How to successfully and profitably winter bees, seems still to be the puzzling problem with many of our apiarists, and as the season is now rapidly approaching when our little, busy pets are housed for a number of months, it becomes us to adopt the best system possible so as to secure their health and comfort.

This subject engaged my attention for a number of years, as year after year a number of colonies were lost, and some apiaries entirely depopulated.

Other domesticated stock can be wintered without loss, and why cannot bees be wintered in an economical way with the same degree of safety and certainty?

I have wintered in many different ways, but when brought to the severe test of a long and cold winter, all have proven unsatisfactory except one, which I first commenced experimenting with in the winter of 1870-71, and perfected in the fall of 1873, and I am now persuaded this is the only correct and rational system, as it secures protection against cold, and imperceptibly passes off the moisture exhaled by the bees, and also guards against the sudden changes of temperature. Unless these three things are provided for, the bees must suffer.

Upward ventilation, whilst it passes off moisture, if direct, will also permit all the warmth that is generated by the clustered bees to escape.

Warmth being absolutely necessary for their existence as well as comfort, hence, if this passes away too rapidly, a much larger consumption of honey ensues to generate an extra supply of warmth. It also causes an unnatural degree of activity of the colony, which is very objectionable in cold weather. As the warm air escapes, the bees suffer cold, and from the excessive amount of food consumed, undue activity and exposure to a continually changing temperature, disease and death follow. (By referring to my journal, I find that in the winter of 1872-73 I lost all my colonies having direct upward ventilation, while those properly cared for had no trace of sickness.)

If no upward ventilation is provided, the moisture exhaled by the bees condenses and forms ice on the walls and top of the hive, making their home very uncomfortable in cold weather, and as soon as the weather moderates sufficiently, the ice above and at the sides melts, causing wet and damp combs to say the least. In many cases the water comes in direct contact with the combs occupied by the cluster. When this occurs, and the temperature lowers suddenly—as it often does in mid-winter—the colony is lost.

It is true, bees can be wintered in a good dark cellar specially prepared to receive them, but not every bee-keeper is thus situated. But look at those bees when taken out in the spring, and how many mouldy combs and debilitated bees do you find? After such colonies are placed on the sum-

mer stands in the apiary, perhaps for a fortnight, they do not contain over one-half their numbers when taken from the cellar, and why? Because the bees being unnaturally confined, living in an impure atmosphere, under-ground, have not sufficient vitality, and when they fly away from their hives they cannot return. This is what is generally termed "spring dwindling."

Bees in plain box hives, whether movable comb or not, sometimes winter on the summer stand if left alone without any care; but this is only an exception, and not the rule, for if those same colonies had the proper protection, they would have consumed much less nutriment, and contain more bees and brood at the opening of spring; and during winter, when cold and piercing storms are raging, the apiarist who properly winters his pets, can sit in his comfortable room and feel happy and contented, knowing that his bees are also comfortable and enjoying their long winter rest.

The condition of the colony in the fall has a great deal to do with successful wintering. A colony, to winter well and be ready for early spring work must contain—First, a goodly number of workers; second, a healthy, prolific queen; third, abundance of honey and pollen stored in clean comb. Thirty to forty pounds of honey is not detrimental, although twenty-five will do—more is an advantage in this latitude. I never found a single colony suffer from too much honey, if properly handled—many good and much-respected authorities to the contrary do not alter the fact. I am satisfied that where one colony suffers from too much honey, ten thousand suffer from not having enough. I never saw a colony on the first of October that had not some empty comb or comb with brood. If honey is plenty, then empty or brood cells are in the lower front corners of the combs, just where they should be, and until extreme cold weather sets in, which in this locality—south-western Pennsylvania—usually occurs the latter part of November, enough honey is consumed to give plenty room for the swarm to cluster. I am now speaking of colonies having good laying queens, my experience since 1863 having been with Italians.

Bees can also cluster on sealed honey-combs and not suffer. Here I am again on forbidden ground. But I array facts against theory, for I have often found in my observations, when the mercury was visiting in the vicinity of zero, bees nicely clustered against their warm woolen quilts, although all seven frames were filled and sealed for at least 4 to 6 inches from the top-bar of frame downward, the rear ends of the frames generally being full of honey. This can only be done when the warmth is retained so that the combs can be kept warm by the bees. This, however, cannot be done by a single wall hive, or in any hive having a honey-board, although it may have a dozen inch-holes, as moisture will condense, and warmth escape too rapidly.

Another point that must not be overlooked is the number and shape of combs. To try to winter with ten or eleven frames is an error. More than seven frames are positively injurious—for medium colonies, five frames are enough. Bees cannot move from one

side of the brood-chamber to the other, on to new combs, in cold weather, without chilling, and this is why many colonies are reduced or altogether lost in hives having a large number of frames. By using a comb about 10 inches deep and 18 inches from front to rear, the honey is always above and rearward of the bees, and as the honey nearest the swarm is consumed, the bees can easily follow for fresh supplies, without changing combs.

To fully secure the bees against cold and the sudden changes of temperature, and to insensibly pass off the moisture exhaled by the bees, I have made the Combination Movable-Comb Bee-House, which in winter consists of the brood-chamber and the outer case or house. A dead-air space of 4 inches being all around between the brood-chamber and inside walls of the house, and a space 7 inches from top-bar of frames to upper edge of outer case or house. The frames have open tops and closed ends, being 13 inches deep and 19 inches from front to rear, outside. Seven frames form the brood-chamber. About 3 inches below the top bar, several passage holes are made about one half inch in diameter, for the bees to pass back and forth, and to equalize the warmth of the colony. Across the top-bars of the frames, several strips of wood, one half inch square, are laid, and over the whole—as a cover of hive or brood-nest—a woolen quilt is spread, being 6 to 8 inches larger each way than the top of brood-chamber.

The space of 4 inches between the sides of brood-chamber and house is well packed with wheat chaff, or cut straw, if chaff cannot be had, and on top of quilt the space of 7 inches is also filled with same material, when the roof is put on, which has a ventilator at each end to give free circulation of air. This keeps the bees perfectly warm and dry.

The brood-chamber entrance is so adjusted as to come near the right hand corner, while the portico entrance is moved to the left hand, thus no direct blast of air can strike the hive entrance, neither is there any danger of the entrance closing with ice as it is always protected, and comparatively dark.

For in-doors, I simply place the brood-chamber several feet above the floor of the cellar, covering the frames with a warm woolen quilt, and contract the entrance to one-half inch in width. This keeps the bees dry and warm, the moisture passing off through the quilt, whilst the warmth is retained. Several times during winter, on warm days, they are set out for a fly.

With this system I have now wintered my bees for 5 seasons and not lost a single colony, which fact assures me that my system is correct.

Hoping that my fellow bee-keepers may be benefited by my experience and observations, is the desire of your obedient servant.

H. H. FLICK.

Mayfield Apiary, Lavansville, Pa.

Mr. Oatman had known bees put into winter quarters, with a honey board fastened down with propolis, come out equally as well as others covered with quilts.

Mr. Betsinger was glad that others were accepting his theory, that bees would winter well on combs of solid honey.

Mr. Porter had good success with bees packed on summer stands, but when left packed in summer they did not do well.

Mr. Wenzel intended to put a movable jacket about his hives and pack them full of buckwheat chaff.

Mr. Nellis thought that not enough attention was paid to protecting bees early.

Mr. Watson suggested rice hulls as a good materiel for packing.

Mr. King said if chaff is used for packing, it ought to be confined in some way so that it cannot be littered around.

Prof. Hasbrouck recommended contracting the brood-nest and covering with woolen blankets as the simplest and best method of wintering.

Mr. Porter preferred chaff on account of cheapness.

Mr. Oatman had experience with wrapping with woolen and different materials, and found old carpets the poorest thing used.

Mr. Everett described a method of wintering by constructing a frame around several hives together and filling it with straw.

L. C. Root gave his ideas about wintering. He was opposed to much packing, and preferred buckwheat chaff when it was done. Warmth was desirable, because it produces a dry atmosphere inside the hive and this was necessary for the health of bees. He advocated unpainted hives, as they allow moisture to escape. He had noticed when bees were dry they deposited dry feces on the bottom board. In-door wintering under imperfect conditions was not so good as out-door with proper conditions. He said that Capt. Hetherington spends much money in wintering, and not always with best results, while a cloidhopper near him would winter without ever losing a colony in old gums with cracks in sides and top, on summer stands and without care.

Our Honey Markets.

By the inventions of the movable-comb bee-hive, the honey extractor, comb foundation, and the consequent better knowledge of the nature of bees, the annual productions of honey have increased to almost incredible proportions. Ten or twelve years back, an average crop of 15 lbs. of honey per hive would be considered a good yield per season, while to-day an average crop of 150 lbs. per hive is thought nothing extraordinary in a well-regulated apiary. Besides this great difference in quantity, those 15 lbs. of old would be marketed in promiscuous shapes. Boxes of any kind would answer for honey—neither producer nor consumer was particular.

Of late, however, matters have changed. Not only is the best and neatest style required for marketing honey, but it is also essential that each kind of honey be kept separate, otherwise the lowest rates will have to be accepted for all.

Taste is cultivated for different kinds of honey throughout the country. While some will pay the highest price for clover, others will prefer the linn or basswood, poplar, buckwheat, sage, sourwood, or any other kind of honey. For manufacturing purposes, also, different kinds are preferred; bakers preferring buckwheat and poplar honey.

Compounders of liquors and manufacturers of wine, linn or basswood; tobaccoists, clover honey, etc. Every sensible bee-keeper, therefore, will find it to his advantage to comply with the requirements of the market.

Producer and dealer should unite in offering honey to the consumer in the most attractive style.

Extracted honey is, perhaps, most acceptable to the retail trade in neat glass jars, neatly labeled, holding $\frac{1}{2}$ lb., 1 lb., 2 lbs. and 3 lbs. of honey. A dozen or two of these jars, put up in a neat case, facilitates the jobbing trade. For druggists, confectioners, etc., desiring larger lots, tin buckets holding 5 lbs., 10 lbs. and 25 lbs., are more suitable.

One requisite to a healthy honey business is the neat outside appearance of packages, and the other, and perhaps the most important, is that our customers are convinced of the purity of our honey.

There is hardly a business in which adulteration is not practiced. We cannot, therefore, well expect that the honey business alone should make an exception. And we find, indeed, an abundance of adulterated honey in the market. It is the stumbling-block to a rapid growth of honey consumption.

In former years, when honey was higher priced, sugar syrup furnished the principal means of adulteration. At present, however, glucose, or so-called grape sugar, has been substituted. Glucose, the sugar of starch, is manufactured in our country of corn, in Germany and France of potatoes principally. This liquid is a dull sweet, of the same thickness and color as honey; unwholesome, but cheap, and not, by far, as sweet as cane sugar. Being without a flavor, it partakes very readily of any flavor brought in contact with it. For instance, five or six parts of glucose and one part of clover honey, mixed up, gives the whole the flavor of clover honey, or of linn honey, if linn be mixed with the glucose. The worst of the matter is, that it takes an expert to detect the fraud. This mixture appears to be complete in regard to flavor, but is minus the acid imparted to all sweets passing through the honey-sack of the bee, and which gives that tickling sensation to our throat. A number of stores in our city are provided with that spurious article. I have seen glass jars containing a piece of comb-honey each, and glucose only filling the remainder of the jars. The glucose had taken the flavor of the comb-honey, and the jars sold largely as "Choice Clover Honey," which their neat labels indicated. The only discovery made by consumers generally was, that they could not tell why they did not like honey any more, when they remembered well they had been fond of it in former years.

The price of glucose is $3\frac{1}{2}$ to $5\frac{1}{2}$ c. per lb., and affords quite a temptation to the unscrupulous. Dealers, principally, were guilty of adulteration, but of late, producers also have tried their hand at it, perhaps stimulated to cheat although indirectly, by some of our bee publications recommending the use of glucose for feeding purposes. I was offered two barrels of honey, within the last month, by one of our beekeepers, which I am certain was glucose,



the larger part of it. This sweet is found in our market under different shapes and names. Corn syrup, for instance, is one of them. Being very susceptible of flavor, the most pleasant flavor is given it. It sells well, but not often to one party, as one soon gets tired of it. Other parties, however, take his place. So much for living in a large country. Another kind of glucose is maple syrup; seven-eighths or more of all sold is glucose.

As bee-keepers, we don't care how much honey-syrup is sold, but glucose honey is very detrimental to our welfare, especially so if the glucose part of the name is left off, and the article forced on the market under the name of "Pure Honey."

I have been thus particular in describing adulteration, because I wish to put on their guard honest producers and fair dealers. That the public be assured of the purity of our produce is of vital interest to the bee-keeper and honey dealer.

In regard to comb-honey, it is of importance to the bee-keeper, first and above all, to produce a choice article in good shape. Choice comb-honey is white and well capped. Small frames of light, clear lumber, 5 to 6 inches square, and $1\frac{1}{2}$ to 2 inches wide, filled with nice, white comb-honey, well finished, and weighing $1\frac{1}{2}$ to $2\frac{1}{2}$ lbs. each, is perhaps the most suitable shape with which to meet the retail demand. Neat shipping cases, holding 50 or 60 lbs. of the above frames of honey, will accommodate the jobbing business. Shipping-cases should be cheap, neat, but strong enough to stand transportation, and the contents should be shown through glass on two sides to as much advantage as possible. When placing them in our stores, the honey should be shown without exposing it to the dust, dirt and flies.

Neat glass-boxes, filled with nice, white comb-honey, looks well; but the most popular shape is, undoubtedly, a frame, as described above, without any glass. Purchases of honey look so much at their own interest in close times like the present, that they are loth to pay for any more tare than necessary. The price of honey, like that of other produce, will be regulated by the laws of supply and demand, just as soon as consumers commence to be better judges of the quality; when honey will also, cease to be merely an article of luxury.

Granulated honey, which is apparently so much objected to by the uninitiated, and is a source of trouble to dealers, will then be the preferred article, which it has been for years in the Old World. Perhaps nothing is a better proof of the purity of honey than a solid granulation. CHAS. F. MUTH.

Cincinnati, O., August 10, 1878.

L. C. Root. I think this one of the most important subjects before the meeting. We must not only watch the dealers, but see that the producer is free from any practice that might injure the business. On this score I object to the use of foundation in the boxes. The adulteration of honey by the use of glucose is a very serious one to the honest producer and the prosperity of the business. Some think that honey in the comb, as well as the extracted, is tampered with, and sales are very much affected. This should be

corrected, as a large and growing interest ought not to be allowed to suffer from the dishonesty of a few unprincipled men. Sixty pound crates I consider too large; twenty pounds makes the best package for handling. Frames without glass I think lessen the sale. Grocers who have dealt in them are opposed to them as being troublesome to handle and not a practical form for the general public.

AFTERNOON SESSION.

Mr. Shearer. Two years ago I killed nearly all my bees by experimenting with feeding glucose. I fed them as much as they wanted to eat about the middle of April, and I continued to feed them, but they did not develop satisfactorily; they continued to dwindle until I had but eight colonies by doubling. I determined to follow up this, and later put the eight into two, and lost them. This had a bitter taste and may not have been as good as some made now. Certain poisons in small doses have a stimulating effect, and in large quantities are poisonous. I have never experimented since, but I am satisfied that all who have tested can detect these poisons. The question is, are we not ruining our trade if we admit any use at all of glucose. We may not be able to stop its use, but we can make it a penal offense to sell it for honey. Let each article be sold under its own name.

Mr. Porter. There is a difference in the quality of grape sugar. If we can have a wholesome food for wintering bees it will be used. An article free from sulphuric acid, which seems to be the chief objection, I would so experiment with that it will not be stored, and mark the result.

Mr. Bacon has lately examined specimens of grape sugar and glucose. Grape sugar is hard; glucose soft, peculiar in taste, and has not the same body as honey, and by adding it to honey it may deceive. It varies in price, according to quality, from five to two and one-half cents. This material will throw us out of the market. It is an inferior material, not honey, and should not be so called. Druggists need the purest honey for their prescriptions, and the use of another substance vitiates the prescription and it is a gross imposition upon the public.

Mr. A. E. Manum, of Vermont, sold his extracted honey to a druggist in Troy, who used it in the manufacture of a patent medicine, paying him much higher than the market price because he knew of the adulteration after leaving the producer, and feared its use in his goods.

Other members gave similar testimony.

Dr. Trimble said we must be careful of reputation, otherwise sales could not be kept up, and gave a statement of adulterations in butter and how shamelessly some rich men had lent themselves to frauds in articles of food.

Mr. Newman. It is essential to know what we are eating, whether honey, butter or anything else, and the AMERICAN BEE JOURNAL, as well as the *Bee Keepers' Magazine*, will uphold honest dealing and denounce adulteration.

Mr. Shearer stated that in this country 97,000,000 bushels of grain are used yearly to make spirits. By the use of strychnine,

stramonium, poppy-juice and belladonna, the gain in quantity produced was very great, viz.: from 3 to 16 gallons. This is done for profit; men know it, yet they will drink it. We cannot PREVENT the sale of glucose, but we must protect the people from the adulteration of honey. There is sufficient acid in the best glucose to kill bees. The adulteration of syrups is very extensive.

Mr. Porter. Our laws against adulteration should be as strict, and as strictly enforced, as those of England.

Mr. King. I have bought both the imported and the home-made grape sugar, and could never eat a piece the size of my thumb-nail without vomiting. Mr. Bergh's law is broad enough to prevent the needless taking of life, and I intend to make this a test case, and see if our pets cannot be protected. In Kentucky there is a law to prevent adulterations. On this question we all stand on the same ground.

Mr. Bacon had killed bees in days of ignorance, but will do so no longer. He produced specimens of glucose and grape sugar, which were passed around and tasted. If what is fed in the fall is not wholly consumed in the winter, it will become mixed with the honey the following year. One factory in Buffalo converts 5,000 bushels of corn a day into glucose. Its manufacture was described. The adulteration of honey is very small as compared with the amount of the crop, and need not excite any fear whatever on the part of the consumer, but we desire earnestly to nip this in its infancy, before it reaches the alarming extent of the various syrups.

Mr. Hasbrouck. If pure glucose is not deleterious, some of the chemicals may sometimes remain. The trouble does not come from sulphuric acid, but from sulphate of iron, which is not fully removed, and Mr. Shearer's bees probably got some of this. Glucose, fine and better than what has been passed around, is a great temptation. Honey will not act as glucose does when treated with proof alcohol. With glucose a precipitate is thrown down; none with honey, which simply appears of less consistency.

Comb Foundation.

N. N. Betsinger. Many, no doubt, think enough has been said upon this subject to prove that comb foundation has become a success. But I say unto you of a truth, like the Queen of Sheba, "the half has not been told." Without any selfish motive or prejudice upon this subject, I give you my experience for the past two years with comb foundation. The first was purchased from a party whom I have every reason to believe made it from pure wax. It was placed in different forms in several hives, all of which was accepted and worked out into perfect combs, except where used in the brood-chamber, and there it stretched half an inch in 9 inches. The sagging was nearly all in the upper half of the comb, and where more than this is noticed, you may put it down a fact, that it is an adulterated article. A few days later in the season, I learned that our worthy friend, Capt. J. E. Hetherington, was using wire in foundation in the brood combs, to prevent it from sagging. The idea

struck me favorably, and I cried, "Victory at last!" Still, an important point was to be solved, viz.: How can the wire be run in the foundation without injuring the soft metal rollers? After a few weeks' deliberation, I concluded to let the matter rest until the meeting of the North American Bee-Keepers' Association, that I might there avail myself of the knowledge sought for; but as you all know who were here a little less than one year ago, notwithstanding my persevering efforts, I was obliged to submit to defeat. Being determined not to be outdone, I prayed to God that the secret might be revealed unto me, and in a few moments, like a flash of lightning, the whole was pictured out before me. The first point was the necessity of ordering a pair of copper rollers, which were in a few weeks completed by Mr. Washburn, of Medina, Ohio; the most perfect mill now on the face of the earth, and it is the only machine that has been able to make 900 square feet of foundation out of 100 lbs. of wax. The septum of such foundation will be 7-100 of an inch thinner than that of natural comb. Moreover, where wire is desired in foundation, this machine completely fills the bill, for just as many feet can be made with wire in as that without. The wire was found to be no hindrance to the bees, and 48 hours seemed sufficient time to perfect the foundation into natural comb. The queen also made no choice in depositing her eggs; even the cells occupied with wire at the base seemed to be unobjectionable to her. I put on the boxes two-thirds filled with foundation, the next day after the swarms were made, expecting the bees to occupy them immediately. The prospect now was very flattering for foundation becoming a perfect success; but seeing the bees did not take to the boxes, I concluded to examine the brood-nest, when alas! to my disappointment, the bees refused to nurse more than one-half of the brood where it was placed upon the wires. The corroding of the wires seemed to so impair the health of the larvæ that the bees were obliged to remove it. The season now being half advanced, with the brood-chamber three-quarters filled with solid stores of white honey, and not a drop of honey in the boxes, in nearly all of the hives. I therefore perceived at once that the bees were not to be humbugged in the boxes, if they were in the brood-chamber, and concluded to withdraw a portion of the boxes occupied with foundation, and gave them boxes partly filled with natural comb. They immediately entered them, and in a few days all were filled, while those with foundation remained unaccepted. I have now on hand over 3,000 boxes, nearly full of foundation, which have been on the hives a large portion of the summer. I now leave the subject for your decision. The experiments of the past season with foundation comb, have cost me over \$1,000. Does it still remain a success with you?

A. J. King replied to Mr. Betsinger, controverting his views, and stating that to him foundation was a great blessing.

Mr. Porter gave his experience, to the effect that while white foundation was a failure with him, the yellow was a great success. He observes little sagging in cool weather.



Rev. J. W. Shearer recommended to have foundation drawn out in the spring, and put aside for use in the swarming season.

Mr. Manum believed that foundation correctly made, and rightly put into the hive, would not sag.

Mr. Oatman. There is no trouble with sagging in Illinois. If any comb sags it is improperly fastened.

Mr. Wright found that foundation from 5 to 7 square feet answered best.

Mr. Oatman thinks that made from $5\frac{1}{2}$ to $6\frac{1}{4}$ feet to be preferable.

L. C. Root is *very much* in favor of foundation in the brood-nest, but is greatly opposed to its use in surplus boxes. Had put foundation in sections, and in the same clamp other sections with comb-guides simply, and the bees filled those without the foundation first. I think foundation without wire not practical, as a swarm cannot be hived upon it. I do not want combs built out in the fall for spring. The plan is not practical. Capt. Hetherington has used 2,000 or 3,000 lbs. with wire, and thinks it a grand success.

Mr. Betsinger offered to give any one \$50 who would present him, within a year, a piece of comb of 144 square inches, with perfectly developed brood over all the wires.

Mr. Nellis accepted the offer.

Mr. Porter thought that Mr. Betsinger must have used defective foundation.

Mr. Nellis considered the flat-bottomed cells the best. He has used it in his apiary, and it is not possible to distinguish honey stored on this from the natural comb.

Mr. King asked if by using foundation in boxes he could not do away with separators?

Mr. Nellis answered that he could not.

Mr. Batty said his experience was favorable to its use in the brood-chamber, but not in the supers.

Mr. Bacon used boxes in one hive without separators, and his sections could not be crated.

Mr. Everett considered foundation a success in the brood-chamber, but deleterious in boxes.

Mr. King offered the following resolution: *Resolved*, That foundation, where used in the brood-chamber, has in the past proved a success, and is worthy of adoption. This, after discussion, was carried.

L. C. Root offered the following resolution: *Resolved*, That the use of foundation in surplus boxes is not approved by this Convention.

Mr. King thought such a resolution would stop all investigation.

Mr. Nellis thought, after going home from the Syracuse Convention, where his views of using foundation in boxes met with great opposition, that he was getting to be a humbug, but after the very parties who condemned the foundation there, ordered 300 or 400 lbs., he thought he would go ahead.

Mr. Oatman had visited bee-keepers who had used foundation in boxes very extensively, and they could not be induced to abandon it.

After further discussion, the question was put and lost by a vote of 13 to 20.

A letter from the Rev. M. Mahin was read, as well as an essay by Mr. H. A. Burch.

To Honey Producers and Consumers.

The Bee-Keepers' Association of North America, in session in New York city, October 8 to 11, 1878, realizing the increasing importance of honey production and consumption, respectfully submit the following facts, which are no less important to the consumer than to the producer of honey:

It is now only a few years since the invention of *movable-comb hives* opened up a new era in bee-keeping, making it a successful pursuit. Such hives, adapted to climate, furnish every facility for intelligent management and manipulation of both bees and comb.

The invention of the *honey extractor* (a machine which empties the honey from the combs by centrifugal force, without injury to the bees), marks another advance step in apiculture. Thus virgin honey, free from foreign admixture, is obtained, having the flavor of the flower from which it is drawn.

The further invention of comb foundation, made of pure wax, completes the requisites for successful bee-keeping.

The introduction of Italian bees and improved methods of rearing queens and introducing them to colonies, has greatly improved the value of the honey gatherers, both because of their superiority and the introduction of new blood, preventing danger from "in-and-in breeding."

The great drawback is the *sting* of the bee. Danger from this source is now largely overcome by the simple appliances used for the protection of the person and for subduing the bees. The most vicious colony may be subdued in a few minutes.

TO CONSUMERS OF HONEY.

A few facts are necessary to preserve them from imposition. Nice white comb speaks for itself and is generally admired, but the price many lovers of honey will not afford. It makes a beautiful dish for the table, but is no better than *extracted* honey. All comb is wax, and in the stomach it is perfectly indigestible. *Extracted* honey is the pure liquid honey, taken from the combs by the honey extractor. It is entirely different from what is known in the market as *strained* honey. Consumers help to impose upon themselves by the false idea that pure honey will not granulate. They desire ungranulated honey, and dealers have attempted to supply the demand. Almost all pure honey will granulate when exposed for some time to light and cold. The granulated state is an evidence of purity. Much of the jar honey heretofore sold and recommended not to granulate, is a very inferior article, composed largely of glucose. Granulated honey can be reduced to its liquid state in a few moments by placing the jar in warm water. When thus liquified, it so remains for some time before again crystallizing. Consumers may be sure of a wholesome article by purchasing granulated honey and reducing it.

We would respectfully call upon producers and consumers to unite their efforts to procure, by petition or otherwise, such legislation in their respective States, as will prevent the placing of any adulterations on the market under the name of honey. This becomes the more important, since, during the past year, some American honey has been condemned in Great Britain, as adulterated. We certainly ought to prevent the sale at home of such adulterations as are forbidden in European countries. We suggest the following tests to prove the purity of honey:

1. Honey adulterated with a poor article of glucose will, when poured into a cup of strong Japan tea, turn black, by the action of the tannic acid upon the copras left in the glucose.
2. A purer article of glucose is detected by pouring strong alcohol on it in a tumbler. The alcohol will dilute pure honey, but it will cause a deposit of glucose as a gummy substance at the bottom of the glass.

TO PRODUCERS.

By full use of improvements in bee-keeping, the honey crop of America may be almost indefinitely increased, and become a great source of national revenue. The home demand and consumption is largely increased whenever people learn to know the superiority of such honey. A large export trade is already commenced, and we are told that the only difficulty is in procuring honey in proper shape and quantity to supply the growing demand. This should be put up in attractive packages or small jars, so as to be readily handled by grocers and consumers.

Honey was for centuries the principal sweet known, and is still one of the most healthful. Improvements in refining sugars have within the last two or three centuries led to its general adoption. We may also see new improvements in apiculture restore it to its true place as a general favorite, which was lost by bad management and the consequent corresponding limited supply?

Improvements in bee-keeping, as compared with old methods, are not less than those in railroads and steamboats as compared with former methods of travel.

For mutual information we would advise the organization of local societies and conventions to further this business among all interested in apiculture.

E. PARMLY, Sec'y.

THOMAS G. NEWMAN, Pres.

Rev. J. W. Shearer moved that 1000 copies of the above address to the public, giving consumers methods of detecting adulteration, be printed and sent out to bee-keepers to be inserted in local papers. Carried.

Standard of Purity.

Mr. Oatman. Some have a standard of excellence based upon beauty, and they lose sight of honey-gathering qualities, docility, &c. One of the best tests is their action on the combs. If they run about wildly instead of keeping quiet, no matter how beautiful, they are not pure.

Mr. King says it is impossible to raise the best queens for \$1.00.

Mr. Betsinger thinks that bee-keepers will never settle upon a standard of purity. Hybrids are frequently not distinguishable from the pure, and he considers the Italian a hybrid bee.

Mr. Oatman had kept both, and he found Italians gave a surplus in a poor season, while the blacks gave none. They are easier to handle and the queens easier to find.

Rev. J. W. Shearer. There are two so-called native bees in this country—the black and the brown.

Mr. Newman. The Italian bee bred in this country improves after several generations, if bred upon scientific principles for improving the race.

Mr. Rogers and others agree that sometimes a queen will duplicate herself early in the season, and latter her queen progeny will be darker.

Mr. Newman. We may excel in bees as well as in other stock, by the use of the choicest drones and queens.

Honey-producing Bloom.

Dr. Heath described the culture and merits of alsike clover, and asked for further information as to its merits as a honey plant.

Mr. King. It yields honey largely, and is better for stock feeding than the red clover. It dies out except on low rich soils, and requires replanting. The tulip tree blooms just after white clover.

Mr. Betsinger. It blooms in central New York the latter part of June, and yields more pollen than honey.

Mr. King. Sour-wood produces large quantities of honey in the South, equal in appearance to white clover, and I have made arrangements to furnish the trees to bee-keepers. I think they will grow North. It is said that in the Rocky Mountains one acre of Lucerne clover will give pasturage for 100 colonies.

J. E. Moore tried it thoroughly and reports adversely.

Mr. Newman. Sour-wood honey is fine in appearance, but not in flavor, we have a specimen of it in our office; many have tasted it, but none like it.

Mr. King finds its gripping qualities undeniable.

The Rev. J. W. Shearer thinks it the finest in the world.

Mr. King had this season kept on the top of his office building 43 colonies, and had had better success with them than when he kept bees on Jersey Heights. The quality of the honey gathered was good, and he thinks them free from the aspersions of gathering from sugar refineries and groceries.

Mr. Newman had samples gathered in the heart of Chicago, Cincinnati, Toledo, &c., of good quality, clear and bright.

A. C. Watson, of Brooklyn, was frequently astonished to see bees working in great numbers on the clover on the battery. It is cut often, which makes it bloom more profusely and increases its duration.

Dr. Burgess, Mr. Newman, Prof. Hasbrouck and others, were confident that the amount of white clover bloom and its duration were increased by frequent cutting.

Mr. Hasbrouck stated that the American linden yielded far more honey than the European linden, on Long Island.

Mr. Van Winkle rose to corroborate what Mr. King said about the honey stored on his roof. He found it very superior.

Mr. King. Honey-dew honey is good and preferable to buckwheat. Alsike clover blooms at the same time as white, but lasts longer.

Mr. Root would, if he had a farm, plant alsike clover for bee pasturage every year.

Dr. Trimble asks if it is practical to put bees on boats to keep pace with the advancing flora?

Mr. King thinks there is no reason to doubt the feasibility of the plan, as it has been tried in other countries with success for many centuries. Any want of success in Mr. Perrine's effort on the Mississippi may be overcome by further experience.

Mr. Newman. Mr. Bingham has practiced migratory bee-keeping with success.

Mr. King. Mr. Hoagland's success in California, is due to migratory bee-keeping.

Mr. L. C. Root stated that during the past season he had found eight different parasites on bees, and he thinks bees are benefited, and their activity increased, by long transportation, as in the movement many of these pests are left behind. He then exposed a swindling advertisement cut from the *Country Gentleman*, stating that every hive of bees kept on that plan, &c., would produce a profit of \$50.00 yearly. Such advertisements are a fraud and a swindle.

A paper by Mr. C. J. Fox, on bee-keeping in California, was then read.

Mr. King says the various orders of the eucalyptus or blue-gum tree are good yielders of honey.

Mr. Rogers does not believe California to be the paradise of bee-keepers. The climate some years is such that but for the intervention of man, bees would be exterminated there.

Mr. King. The 5 years I resided in California, my bees did well.

A paper describing Mr. Ira Parke's hive was read and commented upon. Each member seems to have a settled preference for the hive that use has made him familiar with.



Foreign Races of Bees.

A paper on Italian bees, by Mr. James Heddon, was then read. Mr. Root moved a vote of thanks for this valuable paper. Mr. Heddon was a practical apiarist and his change of views in favor of Italians was a powerful argument in their favor.

Dr. S. P. Parsons, of Flushing, L. I., by invitation of the President, addressed the Convention. He said he was surprised to hear men speaking of importing queens still from Italy. If he wanted a good queen, he would prefer a 40th or 50th cousin of some of those he had imported at first. He had two regrets about his connection with Italian bees—one was, that he lost about \$1,000 by his enterprise, and the other was, that he did not have an opportunity once of letting his bees loose on a New York mob. During the draft riots in New York, one of the leaders of the mob sent him word, that, as he was one of the original abolitionists, they were going to pay him a visit. He gave his men orders to carry his bees and set them upon the edge of a verandah about 15 feet from the ground, and when the mob came near to kick them over, when he expected a rare enjoyment in seeing them scatter the crowd. But the ferry stopped running, and the fun was spoiled. He was requested by the Government, during a tour in Italy, to investigate the bees of that country. He did so, and purchased 24 colonies for himself, from which but one queen and a handful of bees in one hive survived the voyage. Just then he had a visit from Mr. Langstroth, who took the remnants in hand, and nursed them up into a prosperous colony. His last sales were of 800 queens.

It was moved and seconded, that a vote of thanks be tendered Dr. Parsons for his interesting address. Carried unanimously.

The President regretted that Mr. Langstroth was not present to meet his friends, and re-read the communication from him.

Dr. Parsons paid a very graceful tribute to the character of Mr. Langstroth, and his devotion to the science and culture of bees.

Mr. Betsinger moved that Mr. Langstroth be cordially invited to attend the next meeting of the Association, and that his expenses be borne by the Society. Carried.

Dr. Smith, who had traveled extensively in Asia and Africa, spoke about bees of those countries, and his interest in the subject from his youth. He many years ago wrote a little book on bees. He knew more about the bees, than of the different races of bees. He had kept them in the heart of Boston, where they made a great deal of honey, which he once exhibited at Horticultural Hall, but most persons were skeptical about it, and he lost reputation for veracity. Also kept them at the Quarantine grounds, and found them peaceable generally. They were sometimes made angry by the too near approach of uncleanly persons. The perspiration of some persons is offensive to them. There is a small, stingless bee in Brazil, that builds its cells in little cups like an egg cut transversely. When the ants are rearing brood, the ant bear leaves them and climbs the trees and feeds upon these stingless bees, which gives the ants a chance to

increase in numbers. One of these colonies was once brought to Boston, but it was so preyed upon by various enemies that it dwindled away. In the Holy Land, about Bethlehem, there are many bees. They are kept in earthen pots made of clay unbaked, placed horizontally in rows, sometimes 200 in range. It is, in truth, a land of milk and honey. The honey is of great excellence. At every step you tread upon flowers. The honey is obtained by taking it out of the end of the cylinder. Bee-culture is very rude in Turkey. In Africa they are not cultivated, but are found in trees. In rocky portions of Greece the bees build in rocks, and the honey is often secured by raking it out of the crevices. The honey is sometimes poisonous, and the poisoning of Xenophon's soldiers has been handed down.

Mr. Shearer gave in full the origin of tangling bees, as connected with the birth of Jupiter.

Untested Queens.

Mr. Alley said that he sent out as good queens for \$1.00 as he had done for \$2.00 or \$2.50.

Mr. King thought it was an injury to the business to send out untested queens.

Mr. Porter thought if Mr. Alley and others could furnish good queens for \$1.00, the matter ought to be left to the laws of trade.

Rev. Shearer wished the terms "dollar queens" "warranted queens" and "tested queens" defined.

Mr. Alley replied that a "warranted queen" was one reared from a mother which produced three-banded workers and which he warranted to be good. A "tested queen" was one he knew to be good.

The President defined a dollar queen to be an untested queen, and he thought no Italian queens ought to be sold before being tested.

Mr. Oatman said he had bought many queens from whose colonies he had obtained no surplus, and that he did not secure any till he had bought queens that had been tested and known to be good.

L. C. Root offered the following: *Resolved* that we as an Association advise beginners to buy only tested queens of reliable breeders.

Mr. Nellis thought that the dollar queen business was so well established, that it would be hard to break it up. People wanted cheap queens under various circumstances, and as long as there was a demand for them it would be supplied. He had spoiled his stock by the introduction of imported queens. Many queens brought from Europe were unfit to be put into a hive. He will not import any longer, but will breed up a strain that suits him.

The Resolution was then put to a vote and carried unanimously.

Mr. L. C. Root then read a paper entitled "Hints to Beginners."

Dr. Trimble. Will any one take apprentices? It is stated that even one day spent with a practical man in the working season would advance one very much, and might be all he would need as a stepping-stone to success, while others might with advantage

spend a whole season with a good bee-keeper.

Dr. Burgess began by trying foundation and all other things, and had good success.

Petition to Congress on Adulteration.

Mr. King presented the following report from the committee on adulteration:

To the Honorable the Senate and House of Representatives of the United States, in Congress assembled:

Your petitioners, being delegates duly chosen by the different local organizations of bee-keepers of the United States, assembled in National Convention in the city of New York, this 8th day of October, 1878, respectfully represent to your Honorable Body, that

Whereas, The production of honey in our country now amounts in value to near about twenty-five million dollars, and the industry is fast assuming national importance; and

Whereas, The honey is being adulterated by unprincipled dealers to an alarming extent, poisoning the health of our people, destroying the prospects of producers by bringing the article into disrepute at home and destroying our export trade, with other evils too numerous to mention;

Therefore, your petitioners pray for a law against adulteration of honey, affixing such fines and penalties to its violation as shall prove an effectual protection alike to producers, honest dealers and consumers of honey, and your petitioners will ever pray.

On motion the report was received and the recommendations adopted.

Miscellaneous Business.

The prize of \$25 offered for the best Essay on Fertilization in Confinement, was awarded to Mr. Hasbrouck, which he, in a graceful speech, handed to the President, stating he wished it held by the Association to be awarded at the next October meeting to the person who made the greatest improvement in the means to effect fertilization in confinement. The applause that greeted this action showed that it was fully appreciated.

Balloting for place of next meeting was next declared in order, which resulted—Chicago, 18; Cincinnati, 14.

The Executive Committee for next year were elected as follows: Thomas G. Newman, J. Hasbrouck, Ewrich Parmly, E. J. Oatman.

It was *Resolved*, That our next meeting be held in Chicago the 3d Tuesday in October, 1879.

The President called attention to the report of the Committee on granting medals, diplomas, prizes, which was passed, and asked the pleasure of the Convention.

Mr. Porter. As to details, this should be left with the Executive Committee, with power to act. The value of a medal should be in its source, and not its intrinsic value.

It was, on motion, *Resolved*, that the whole subject be referred to the Executive Committee, with power to act.

Mr. King suggests that instead of one person acting as judge, a local judge should

act with him, and neither should know the producer.

An invitation of the European Congress of Bee-Keepers to send delegates to their next meeting at Prague, was re erred to the Convention.

On motion of Mr. King it was *Resolved*, that if President Newman could attend that Congress and other European Associations of Bee-Keepers, that he represent this Association.

It was moved and seconded, that the bill for rent for the room for the present meeting be allowed and paid. Carried.

The Convention then adjourned to meet at Chicago, Oct. 21, 1879.

THOMAS G. NEWMAN, *Pres.*

E. PARMLY, *Sec.*

Stray Thoughts.

READ BEFORE THE KANSAS CONVENTION.

Your favor of Aug. 8th, asking me to attend your State Convention or send you a few penned thoughts, is received. Thanks for your kind invitation to attend, and while I assure you it would afford me much pleasure to meet with the bee-keepers of your Prairie State, many reasons make it impracticable. I will pen you a few, very few, stray thoughts upon some of the breakers in the way of the future welfare of the honey producer, that if I am correct and you conceive it so, you may be the better able to avoid them. I think you all will agree that if we can raise large crops of honey, and get good prices for it, our future is clear and bright. First, in regard to prices, I must confess that much has been done of late, to at least retard that rapid tendency downward, that our product has taken. I claim that *no* product should be so high that its lovers cannot enjoy it. Again, great care should be taken that an overstocked market does not put its price so low that the producer must suffer. I believe that most of you are aware that our late styles of packages, which are safely transportable, have attracted the attention of dealers and consumers in nearly every part of the old world. This avenue may, I think, be reasonably expected to act as a safety-valve to our honey markets. Those who store their honey in old-fashioned packages, must expect to suffer for their folly. A honey package, to bring a remunerative price, must be independent; by that I mean put up in such shape as to be open to the bids of the world. To conclude this part of my subject, I will say that, positively, everything looks like we were going to protect ourselves in that important part of our present marketing and prices.

Now to the other part of our troubles: How to raise large crops of honey, of good quality. In regard to comb honey, which seems to be taking the particular attention of both producers and consumers of late, its quality is always as good as the flora will admit of. Of extracted honey, there is but one way yet known to keep up its reputation, and give your customers "value received," and that is not to extract it till all capped



over and "ripened" by the bees. This plan involves more labor, of both master and bees, and has consequently turned the attention of our most practical producers to the "royal seal of the bees," on raising of comb honey. To aid us in producing large yields we have learned how to prune our combs, or get them straight to start with, how to stimulate our colonies in needed seasons, how to properly construct our hives in size and shape, how to choose the best race of bees, how to supplant poor colonies with good ones, by controlling breeding, and many more ways too numerous to be mentioned here. But now I come to our worst enemy to the success of bee-keepers at large, and that is

OVER-STOCKING.

While it is true that thousands of pounds of honey yearly come and go, with no little gatherers near to gather it up for our hungry cousins across the waters, still there are very many localities greatly over-stocked. I can hardly conceive how one could be favored with a better opportunity to judge of over-stocking than I have been. I have had the entire field a part of the time for 10 years, with an apiary of from 300 to 375 colonies. Now, with 2 apiaries, 1 in an over-stocked locality, and 1 in a field nearly all to themselves, I have a fine chance to watch the results. I have made a careful estimate of the amount of honey probably consumed yearly outside of the surplus receptacles by bees, brood, brood-chambers and comb-building, within an area of 3 miles from my home apiary. In round numbers, it figures up to 125,000 lbs. With this number of bees kept, we shall never get any surplus except at two or three short periods in the best of seasons. I have watched this matter closely for the past 3 years, and now I say, all honor to our old friend Jasper Hazen, while he may have been somewhat at the other extreme, he is much nearer right than most writers upon this part of apiculture. There are too many accommodation theories written under the golden guise of scientific facts. It may be pleasant to see things in a shining way, but to succeed we must see them as they "am", as Billings says. We learn faster by experience, and only of late have had so good a chance to experience over-stocking. It seems as though bee-keeping ought not to be overdone in any locality, while so many rich fields lay totally unused. I have no doubt that honey-producing is destined to become a specialty. The more so, because it is different from any other business. It requires different study, different tools, different tact, and many appliances to make it a success, too costly to be afforded by the owner of a few colonies, particularly when he lives in a well-stocked field. When any field becomes so over-stocked that the business pays no one, the small bee owner will drop out, because he can. The specialist will not, because he cannot. When bee-keeping is run by specialists alone, there will be but little trouble from infringing interests, as no one will care to prosecute the business in a divided field, while whole ones lay open to the sun, and extend a standing invitation to the capital of the honey producers. To beginners who have been

deceived by those fellows who scout about the out-skirts of bee literature, writing agricultural papers for personal advertising, I wish to say, that I beg of you not to believe for one moment that our pursuit requires little labor, little capital, little sense, as a return for great incomes. There is no sure royal road to wealth, without industry, thought, and self-denial. Our business is too old to contain a bonanza. It is one of great chance and fluctuation, particularly to the one who makes it a side issue. For a year or two it will run along quite smoothly, seeming to be almost automatic; but to put and keep it upon a solid basis, and make a permanent success of it, requires thought, labor and capital. It is from bee-keepers of this stamp, that the honey-loving public may expect to be regularly supplied.

JAMES HEDDON.

Dowagiac, Mich., Aug. 27, 1878.

Prevention of Swarms and Increase of Colonies.

Read before the North Missouri Bee-Keepers' Association, held at Auxvasse, Calloway Co. Mo., Aug. 7-8, 1878.

LADIES AND GENTLEMEN:—It has been the custom of nearly all writers on apiculture, to describe the process of swarming and increase of colonies; but the time has come when it is more important to many of us to learn to prevent increase, and to work the whole force for honey. Now, I do not claim that anyone can be entirely successful in preventing swarms or increase; but by strict attention to their bees they may prevent increase, if they work for extracted honey, and have but slight increase if working for box honey. It is best to begin the season with strong colonies, so that the increase of young bees will be gradual. Should you force them to breed faster than natural by giving them empty combs inserted into the brood-nest the result will be an undue proportion of young bees hatching nearly at the same time, and crowding the hive too much. Now, as these young bees remain in the hive about 17 days before they go forth in quest of pollen and honey, we must relieve the overcrowded condition of the hive, and give these young bees something to do or they will become demoralized. Like children they will get into mischief, unless they have something to do. The first thing these idle bees undertake, unless employment be given, provided forage is abundant, will be the building of queen cells. Since we find that swarming is the natural way of multiplying and increasing the species, the honey-bee being governed by the same instinct of all other animated beings, to perpetuate its race, it becomes necessary to see what the usual conditions are necessary to excite swarming. Go to a hive that is preparing to swarm, and you will find that the hive is crowded with honey or bees—usually both—and perhaps not sufficiently ventilated. Now, if you desire to prevent swarming, you must use a hive large enough to accommodate all the bees that one queen can ever produce. You must keep your bees employed, either by

taking their honey, or giving them room to build comb. The young bees having their work allotted to them in the hive, as nurses and comb-builders; those young bees not needed as nurses ought to have room to cluster and build comb until they are old enough to go forth in quest of honey. If you are working for extracted honey, you will as soon as your hive becomes well filled with bees, but not too much crowded, place an upper story on your hive the same size as the lower, take one or two of the outside combs, without brood if possible, and put them in the upper story with division boards, then place empty frames between the brood and continue the process as often as the frames are filled until they get strong enough to build combs above, after which give an empty frame as often as needed. Should you use combs instead of empty frames, and get your hive filled with honey before it is thick enough to extract, remove one of the combs and give an empty frame instead, and put a third story on some of your hives to ripen the honey in your surplus combs.

If you wish box honey, place your boxes on as soon as your hives are well filled with bees and they are storing honey. Have one or two boxes filled with comb, if it contains honey so much the better, place starters of comb or foundation in the other boxes—the more comb the better. The boxes should be placed as near the brood as possible, and directly over it. See that your bees have free access to all the boxes, and when you tier up with empty boxes under your full ones, see that your bees have access to the upper as well as the lower boxes. Should you desire to have combs started in boxes at the side of the hive, place your boxes between the brood and entrance, never behind or to one side. Always give your bees upward ventilation in hot weather, and if you have no shade use a loose cover for your hives, raised at one end or side to allow the air to circulate freely below.

The next thing is to tell you how to manage the few swarms which will unavoidably issue. In the first place see that all your queens have their wings clipped. The best time is while the fruit trees are in bloom. Your hives should all be placed on the ground so that your queens can get back, should you be absent at the time of swarming. To prevent further trouble and subdue the swarming fever, extract all their honey and remove all the queen cells, and they will usually give no further trouble the remainder of the season, provided you keep the honey out of their way, and keep them with one frame not quite filled with comb. If you want box honey, the treatment is not so simple. The best plan is, as soon as the swarm is out, move the old hive a few feet from the old stand, place an empty hive on the old stand to receive the swarm; then take and remove your combs, boxes and all, brush the bees off and remove queen cells and give the combs to your swarm, place your boxes on and set the swarm where you want it to remain. Then give your bees some brood and a queen cell in the old hive, place it on its stand, and your work is done.

In conclusion I will give you a report of my success in preventing swarming:

In 1875 I commenced with 77 colonies, had 3 swarms	
" 1876 " " 118 " " 11 "	
" 1877 " " 130 " " 12 "	
" 1878 " " 130 " " 6 "	

Report of honey during the same time :

1875 extracted.....	6,500 lbs
1876 "	15,000 "
1877 "	14,000 "
1878 "	11,000 "

Total for 4 years ending Aug. 7.....44,500 "

E. C. L. LARCH.

Ashland, Boone Co., Mo.

North-western Ohio Convention.

This Association met at Toledo, Oct. 3, Capt. W. F. Williams in the chair; A. Fahnestock, Sec'y. *pro tem*.

After the reading of the minutes of the last meeting, and their approval, Mr. Newman, Editor of the AMERICAN BEE JOURNAL, Chicago, addressed the meeting in a very intelligent manner, and advanced the solid truth, that every bee-keeper should use but one kind or description of hive, on account of the facility of manipulating; the prize box (size $5\frac{1}{4} \times 6\frac{3}{4}$ inches wide) has become the standard section box and should be put up in neat shipping crates; extracted honey must be put up in neat jars so as to be attractive. He also spoke of the use of honey in doing up fruit, and for sweetening cakes, pies, etc. Honey is no longer a luxury; thousands of pounds are now used where but a few pounds were heretofore used. It has now found its way into manufacturing, and is largely used for making candy, ales, flavoring tobacco, &c., as well as in every place where sugar or syrups were formerly used.

On the subject of queens he said that we did not want queens merely for their light color or beauty, but for usefulness, industry, etc., and that instead of our importing queens from Italy, we should produce such an improved race that Italy and other nations should, and would, import from us. He has no doubt, that we can raise better queens in every respect than any now imported into this country.

Mr. Newman alluded to each convention having a show of honey, bees, etc., once a year, as it tended to create more enquiry, and bring the matter of honey producers more directly before the public.

Mr. Fahnestock offered the following resolution: *Resolved*, That the National Convention at New York should establish a standard of purity for Italian queens, and that no queens should be sent out by any queen breeder, unless previously tested, and up to the standard.

The following resolutions were passed: *Resolved*, That Messrs. Everett and Newman represent us at National Convention.

Resolved, That the members of this Convention report to the Secretary by letter, the increase, amount of honey, &c., and any other matter of interest.

Resolved, That the next Convention of this Society be held at Wauseon, on the first Thursday in January, 1879.

The committee appointed at a previous meeting on the purity of queens, reported as follows:



An Italian queen to be pure should be of a golden or leather color, medium size, large but fine wings, and active; should be noted for her gentility, industry and prolificness. Her working progeny should be distinctly marked by three yellow bands across the body; they should be mild in temper, but quick on defence, when suddenly alarmed, and gentle in manipulations of the hive, adhering closely to the comb. The purity of the queen can only be tested by her progeny.

THE EXHIBITS.

There were over 40 exhibits comprising all the various kinds of this delicious food.

Among the most prominent of the bee-furniture were a standard Langstroth hive, several sections, and a machine for inserting foundation in sections, by W. D. Parker, Defiance, Ohio.

Geo. Wilson & Son of Toledo, had several styles of Langstroth hives, together with frame sections, bees, &c.

Capt. W. F. Williams, of Liberty Center, exhibited a single frame nucleus colony, with pure Italian queen; also a caged queen with bees.

T. G. Newman, Editor of the *AMERICAN BEE JOURNAL*, on his way to the National Convention to be held at Cooper Institute in New York, had on exhibition some Italian bees, and drones in alcohol, beautifully marked, from his apiary in Chicago. Mr. Newman also showed several fine samples of honey in chrysalis phials from three city apiaries: From the *JOURNAL* apiary, Chicago; C. F. Muth, Cincinnati; J. Y. Detwiler, Toledo, and B. O. Everett, who is, located a few miles from Toledo.

B. O. Everett, exhibited some fine samples of honey, a Bingham & Hetherington honey knife and various other aparian supplies. J. Y. Detwiler, exhibited a home-made comb foundation machine, made by electrolyzing a sheet of foundation and fastening the copper deposit to a pair of steel rollers. Also, a pair of plates made by the same process. A microscope with several mounted objects, relating to the anatomy of bees. The six jars of honey which were exhibited by J. Y. Detwiler, of this city, was donated to the yellow fever fund by that gentleman.

A. FAHNESTOCK, *Sec'y. pro tem.*

Albany Co., N. Y., Association.

The bee-keepers of Albany county met at Chesterville, Albany county, and held the second semi-annual meeting of the above named Association. After the calling of the roll, and the reports of the Treasurer and Secretary, the President read the following address:

Ladies and Gentlemen:

It affords me great pleasure to greet so many of the bee-keepers of Albany county, after the anxieties, cares, toils and stings of the honey harvest, to discuss the best methods in the management of bees, and I trust that the interchange of sentiments and experiences on different topics may not only be pleasant but profitable. The first meeting of the bee-keepers of Albany county was called at Clarksville, the 11th

of May last, when we organized "The Albany County Bee-Keepers' Association," and adopted a constitution and by-laws, and at this time we hope to increase our members, as all bee-keepers are, or should be, interested in an organization of this kind. Every occupation, profession or trade has its association, whose purpose is to better the class they represent.

I venture to say, that according to the number of colonies of bees, that there is not another county in the State that produces less surplus honey, and in as poor-shaped packages for market, as Albany county.

Now, shall we adopt the improvements of leading apiarists of the United States, or still continue to use the old box hive, and have our surplus honey stored in 8 and 12 lb. boxes, that we are obliged to sell at a low price, and to the detriment of those who have theirs stored in single-comb boxes of 1 and 2 lbs. each?

Honey put up attractively commands ready sale and at good prices. The grocer has no call for the 8 and 12 lb. package, hence it is a drug in the market. The old box hive has the capacity but for 4 boxes at a time, so the yield must be small per hive.

This question was settled by the Western bee-keepers long ago. All practical apiarists use some kind of a movable-frame hive, the advantages of which are that with a Bingham smoker, you have full control of your bees; to make a swarm or to prevent it; to keep all strong by interchanging frames or uniting colonies; and to introduce new blood, to prevent "in-and-in breeding."

Stock-growers and farmers understand that if they breed from the same stock, without change, the young progeny will be dwarfed or crippled, and without increase; just so with our bees! Who has not noticed in May and June the large number of young bees thrust out wingless, and with other deformities from this cause?

To have our bees prolific and industrious, we must introduce new blood; give them a good movable-frame hive, with ample room for surplus boxes, and the result will be astonishing!

Some say, "I have no time to look after my bees." Now, as all avocations are followed for the profits, why not make our bees pay? With proper care and attention they will pay, and we shall find a large increase in our receipts, for all labor and expense bestowed on them.

The President then called upon Mr. Newman, editor of the *AMERICAN BEE JOURNAL*, Chicago, (who was present by invitation), for a speech. He spoke at some length upon the improved methods of procuring honey and marketing it, &c.

Reports of members, for the statistical table, were then called for and received. New members were also recorded.

Mr. Newman then delivered a very interesting address touching various points, among which were standard honey package; extracted honey and its uses for food and medicine; in-and-in breeding, and the improvement of our race of bees. He exhibited phials of honey, gathered in the heart of the cities of Chicago, Cincinnati and To-

ledo; also Italian drones and workers preserved in alcohol, which were far more handsomely marked than any of our bees in Albany county.

Mr. Newman received a vote of thanks for his instructive address.

Upon motion, it was resolved that the old constitution be dropped, and a new one, better adapted to the wants of the Association, be drawn up by a committee appointed by the President, to be presented for approval at the next Convention.

The Convention then adjourned to meet at Clarksville, on the first Tuesday of May, 1879, at 10 a. m. H. W. GARRETT, Pres.

T. H. VAN ALLEN, Sec'y.

[The Secretary requested us to write out our speeches and publish with this report; but our readers know our views so well on the subjects on which we addressed the Convention, that we prefer to give newer thoughts in the JOURNAL.—ED.]

Central Kentucky Association.

The annual convention of the Blue-grass Bee-keepers' Association took place in Lexington, Tuesday, October 1, 1878.

The meeting was called to order by Vice-president H. C. Herspenger, after which several signed the Constitution and became members.

The Constitution was amended as follows:

In Art. X. "counties" changed to "States"; in Art. I. the name is changed to "Central Ky. Bee-keepers' Association."

The following were elected officers for the ensuing year:

H. C. Herspenger, president; W. Williamson, secretary; J. M. Holman, treasurer; Vice-presidents—J. W. Rose, John W. Bean, W. B. Herring, J. W. Egbert, Thos. A. Hutchcraft, Thos. S. Williams, Dr. Jasper.

The secretary offered the following resolutions, which were adopted:

Resolved, That a committee of three be appointed to confer with the president and directors of the Agricultural and Mechanical Association of Fayette county, as to their willingness to encourage apiarists, and the advancement of bee-culture, by offering such premiums at their annual fairs as they may think proper; be it further

Resolved, That each vice-president of this association act as special committee to confer with the president and directors of the agricultural or fair associations in the counties they represent, with the same object in view as the general committee of Fayette county, and each and all report to this association on the first Tuesday in May next.

The president appointed the following committee for Fayette county: W. Williamson, Thos. T. H. Hayes, J. M. Holman.

Moved and carried that this association offer as a special premium to apiculturists a silver medal, the article or object to be decided upon by the committee and president and directors of the Agricultural and Mechanical Association; providing, however, that the report of the committee is

satisfactory and endorsed by a majority present at the next meeting of this association on the first Tuesday in May, 1879.

The president then read the following questions for general discussion:

Question.—Will it pay to raise pasture for bees alone?

J. F. Bean said it certainly would if it would pay to raise crops at all; he recommended buckwheat, which he had sown extensively, and although the crop has many times been a complete failure, he felt he had been amply repaid in the benefit it had been to his bees alone. The president and other gentlemen agreed with Mr. Bean.

General Gano said that all crops for bees would pay, as all that the bees gathered was clear profit, and he believes there is nothing more profitable than bees.

The president said he favored every plant that produced honey, and nearly every plant would; but white clover is the best from which honey can be produced. He commenced keeping bees five years ago, and he believed they had been the means of making him a better farmer every year he has kept them, and induced him to cultivate a taste for all that is beautiful in nature that he might never have acquired.

J. F. Bean said that willows was one of the best honey producers. It blooms in February, and the bees gather both honey and pollen from it, and every bee-keeper ought to plant them, not only for their honey producing qualities, but they are a beautiful shade and ornamental tree as well.

Question.—How to prevent bees from raising brood in the upper story?

J. F. Bean said that young colonies should be confined to the lower story, until firmly established.

The secretary said, in the case of old colonies, often the brood-chamber becomes so literally full of honey and brood that the queen has nowhere to lay her eggs, and would naturally go to the upper story, either in boxes or frames, to perform her maternal duty; when, if the frames were emptied of all the honey in them by the honey extractor, it would give ample room for the queen, and insure an active and industrious colony; when otherwise, the whole harmony of the colony is in danger. The free use of the extractor is the best preventative for bees raising brood in the top story.

J. W. Rose agreed with the secretary.

Question.—When to Italianize an apiary, and how to introduce queens?

John R. Williamson. In the working season; the most successful plan he has ever tried was to cage the young queen, put it in the hive, leave the old queen in the hive also, and, in three or four days, take the old queen out, smoke the colony well, and let the young queen loose. By this plan there is no time lost, as the young queen commences as the old one drops off.

Question.—Are there any moth-proof hives; if so, which is the best?

J. R. Williamson said the only moth-proof hives known are strong colonies, and no others are worth keeping. If you have weak colonies, put two weak ones together and make one strong one; otherwise, they are worthless.

J. W. Egbert said he thought a moth-proof



hive would be a bee-proof hive; as to keep moth out, you would also keep the bees out too, and the only sure remedy is strong colonies, and the bees will protect themselves. These statements were generally agreed to.

Elder Gano claimed that his Vanhorn hive was moth-proof.

Question.—What is the best remedy for beesstings?

The secretary said a bruised fresh tomato leaf, quickly applied, was an infallible preventive from swelling and pain from bee stings. When that could not be readily obtained, squeeze out all the poison possible after removing the sting, and apply ammonia which is a sure remedy if promptly applied before the swelling has commenced.

Question.—What is required from a bee-keeper to make beekeeping successful and profitable?

The secretary said it could be answered in a few words. Like all well-known successful business principles, it requires study, application, perseverance, energy and labor; without this nothing can succeed.

Question.—What are the advantages of comb-foundation?

The secretary said straight combs were insured by its use; more than half the labor for the bees is saved, and all worker comb; there are other advantages, but any one of these would insure the endorsement of the most progressive bee-keepers in the country.

The president said to use it in small strips, as starters in boxes, it is invaluable; it was generally agreed that comb-foundation is a valuable and successful invention.

Lexington was selected as the next place of meeting.

W. WILLIAMSON, Sec.

Our Letter Box.

Holmesburg, Pa., Oct. 10, 1878.

A few days ago the undersigned opened the stomach of a toad and found 16 Italian bees, 2 black bugs and a caterpillar.

D. C. MILLETT.

Wenham, Mass., Oct. 4, 1878.

As the November number of the JOURNAL is likely to have all the matter it can accommodate, I will not reply to Mr. Moon, and to the remarks of the editor, on page 329 of the October number.

H. ALLEY.

Dubuque, Iowa, Oct. 4, 1878.

Will the writer on Honey Dew, page 320, please explain where his insects get their material or nourishment to eject so much sweets from. Cows west of the "father of waters" have to be fed to yield milk. To me it is like the production of milk from chalk. I am not yet convinced.

GEO. W. HORNER.

Bluffton, Iowa, Sept. 9, 1878.

"This has been a poor season. White clover was abundant, but yielded honey sparingly. It was so wet that in twenty days we had twelve inches of water-fall. Not a basswood tree blossomed this season. About the last of August storing commenced

from fall flowers, yielding abundantly. Extracted from fifty to seventy-five lbs. each from several hives, and a few gave about sixty lbs. in sections. The hives are filled with brood in all stages. The honey is of rather poor quality, and the question now is whether the bees will winter well on it."

O. E. COOLEY.

Farragut, Iowa, Oct. 16, 1878.

For two years I tried black bees. I purchased two colonies in box hives; I transferred and worked with them two summers, and then had three. I Italianized and commenced this spring with them all weak. I built up 22, and with the exception of one, all in good shape. I extracted 300 lbs. of golden-rod honey, and took 200 lbs. of comb honey. I left about 35 to 40 lbs. in each hive for wintering. One-fourth of this not capped; will it do as well as capped, or will they cap it yet? I used comb foundation and the Kretschmer hive. I think them good, the best I have ever seen. I had a few combs melt down. Have sold 2 queens and bought an imported one, the yellowest I ever saw. I would not do without the JOURNAL. I wish it success and expect to get up a club for it. E. J. ROCKEFELLOW.

[If you have 35 to 40 lbs. in each hive and three-fourths of it was capped when you wrote, it will be well. It is likely that all of it is capped by this time.—Ed.]

Cincinnati, O., Oct. 2, 1878.

In the last JOURNAL I see a table giving statistics of a number of bee-keepers as to their successes and failures, in which is recorded many losses of colonies in winter, by improper manner of wintering or *bad luck*. This morning I met a friend of mine who has kept bees for some seven years, and whom I knew to have been successful. He has now about 40 colonies. I asked him about his manner of wintering which he described to me. I then asked him if he lost any last winter. He said, no, *he had never lost one*, at any time. This I call SUCCESS. He is known here as keeping the purest Italian stock, and as, generally, a most successful bee-keeper in every way, although he does not extend much.

HENRY W. STEPHENSON.

Carlinville, Ill., Oct. 21, 1878.

FRIEND NEWMAN:—Mr. C. F. Muth informs me that he has obtained a patent on his extractor. Can he patent an article that has been in general use for years? I don't believe he is the inventor of the comb-basket as he uses it. I cannot find that he made an extractor with stationary can and revolving comb-basket, as far back as 1874. I find that in 1874, J. W. Winder & Co., advertised a stationary can with gearing on the underside. In 1873, Mr. J. B. Keeler, my neighbor, and myself made and used stationary can extractors. Mr. Keeler's geared the same as Muth's. In the spring of 1874, I made another with comb basket exactly like the one Muth claims to have invented, except the frame of mine was made of wood. Now, I would like you to tell me what you think about the validity of his claim. I

J. M. VALENTINE.

Dallas, Texas, Oct. 7, 1878.

F. F. COLLINS.

JOHN H. SMITH.

A. SALISBURY.

W. EMERICK

JAS. E. FEHR, Sec.

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We will send a tested Italian Queen to any one sending us three subscribers to THE AMERICAN BEE JOURNAL with \$6.00. Premium Queens will in every case be tested, but not sent till after July 1st.

Write name and post-office address plainly. If there is no express office at your post-office address, be sure to give your nearest express office when ordering anything by express. Give plain directions how goods are to be sent.

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For the convenience of bee-keepers, we have made arrangements to supply, at the lowest market prices, Imported or tested Italian Queens, Full Colonies, Hives, Extractors and anything required about the Apiary. Our Illustrated Catalogue and Price List will be sent free, on application.

We have gotten up a "Constitution and By-Laws," suitable for local Associations, which we can supply, with the name and location of any society printed, at \$2 per hundred copies, postpaid. If less than 100 are ordered, they will have a blank left for writing in the name of the Association, etc. Sample copy will be sent for a three-cent postage stamp.

Our answer to all who ask credit is this: We sell on small margins, and cannot afford to take the risks of doing a credit business. If we did such a business we should be obliged to add at least 10 to 20 per cent. more to our prices, to make up for those who would never pay, and to pay the expenses of keeping book-keepers, lawyers, and other agencies to protect our customers would not think to their advantage.—This rule we must make general in order not to do injustice to any one. The cash system gives all the advantage to cash customers, while the credit system works to their injury. In justice to all we must have Cash with the order, for all Arabian Supplies.

Honey Markets.

CHICAGO.

HONEY.—The demand for choice lots of comb honey, in single comb boxes is good, and bring from 11c to 12c readily; honey in 2 and 3 comb boxes being a drug at 10c to 11c. Choice extracted honey is quoted at 7c to 8c; but there is not much demand for it.
BEEWAX.—Prime choice yellow, 25c to 25½c; darker grades, 18c to 20c.

CINCINNATI.

COMB HONEY.—In small boxes, 12c to 15c. Extracted, 1 lb. jars, in shipping order, per doz., \$2.50; per gross, \$28.00. 2 lb. jars, per doz., \$4.50; per gross, \$50.00.
 C. F. MUTH.

CALIFORNIA.

HONEY.—Receipts not large. There is some anxiety to realize, in most cases, which makes an easy market with frequent concessions. Some fair comb will only bring 8c, and some good extracted is sold at 4½c. Exports for the week were: Liverpool, 53,784 lbs.; China, 52 cases; Australia, 445 cases. Quotations are as follows: Comb, white, 9c to 10c; comb, dark to medium, 7c to 8c; extracted, 4½c to 6c.
BEEWAX.—25c to 27½c.

STEARNS & SMITH, 423 Front St., San Francisco, Cal.

NEW YORK.

QUOTATIONS.—Best fancy white comb honey, new, 17c to 20c; extracted, new, 8c to 10c; buckwheat comb honey, 13c to 15c; beeswax, prime, 27½c.
 H. K. & F. B. THURBER & Co.

✂ We have gotten a nice Label for Crates, with blanks for addressing, as well as to write the name of the shipper. Price, 15 cents per dozen, postpaid; or 75 cents per 100.

✂ For nice Comb Honey, in Prize Boxes, we pay the highest market prices.

Bingham & Hetherington's Knife AND SMOKER CORNER,

Will contain a short card from some one every month. See Bellows Smoker card on another page.

Oxford, O., Sept. 30, 1878.

Mr. T. F. Bingham—Dear Sir: Excuse the long delay in the acknowledgment of your courtesy in sending me one of your smokers. It is only within a very short time that I have been able, for nearly two years, to take any interest in bee matters. Your smoker has been in daily use for some months in a friend's apiary. He is enthusiastic in its praise, and after seeing how greatly it facilitates the handling of bees, I can most heartily endorse all that he says of it.
 Yours, very truly, L. L. LANGSTROTH.

We have many reports from the new uncapping knives, all of which state that they are a great improvement, doing much more and better work than any other knife.

BINGHAM & HETHERINGTON.

Abronla, Mich., Sept. 23, 1878.



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We wish thus early, to inform our friends and patrons that we are in the field and

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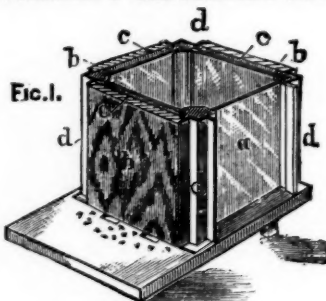
For the Season of 1879 we shall be the **HEADQUARTERS** for Langstroth and Modest Hives, Prize Boxes, Separators, and all the necessities in the bee-keeping line. As we are just a **LITTLE AHEAD** of ALL **COMPETITORS** in producing a fine article of **COMB FOUNDATION**, we shall lead the trade!

Make a note of these points, and write for our **NEW PRICE LIST.**

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Always winters successfully in the coldest climes, when properly prepared. As important in summer as winter, the bees never cluster outside on account of heat, as the glass plates and dead-air space equalizes the temperature. You can ascertain their condition in a moment, and swarm them at your leisure, when it ought to be done. This hive has a cast-iron frame, with glass sides, making it an **Observatory Hive**. Doors fasten on over the glass.

Sample Hive complete with glass	\$5.00
Hives, in lots of 5	each, 4.75
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do. " 25	" 4.00
Extra sets of Castings, with sample hive, ..	1.50
Castings and material ready to nail, without glass, in lots of 5 or more, each	3.50
Lawn Observatory Hives made of black walnut, oiled, complete	6.00

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